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Number 3

Journal

AMERICAN COLLEGE OF DENTISTS

25th Anniversary

In This Issue:

The Discovery of the Primary Dentition Charles D. O'Malley and J. B. DeC. M. Saunders

Effect of Estrone on Tooth Buds and Bones in Growing Dogs Wm. H. Bauer

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Reports of Committees (1943-44).

William J. Gies Endowment Fund A. H. Merritt The Work of the Dental Teacher L. E. Blauch

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AMERICAN COLLEGE OF DENTISTS

Objects: The American College of Dentists "was established to promote the ideals of the dental profession; to advance the standards and efficiency of dentistry; to stimulate graduate study and effort by dentists; to confer Fellowship in recognition of meritorious achievement, especially in dental science, art, education and literature; and to improve public understanding and appreciation of oral health-service." — Constitution, Article 1.

Announcements

Next Meeting, Board of Regents: Chicago, February 10 and 11, 1946. Next Convocation: To be announced.

Fellowships and awards in dental research. The American College of Dentists, at its annual meeting in 1937 [J. Am. Col. Den., 4, 100; Sep. and 256, Dec., 1937] inaugurated plans to promote research in dentistry. These plans include grants of funds (The William John Gies Fellowships) to applicants, in support of projected investigations; and also the formal recognition, through annual awards (The William John Gies Awards), of distinguished achievement in dental research. A standing committee of the International Association for Dental Research will actively cooperate with the College in the furtherance of these plans. Applications for grants in aid of projected researches, and requests for information, may be sent to the Chairman of the Committee on Dental Research of the American College of Dentists, Dr. Albert L. Midgley, 1108 Union Trust Bldg., Providence, R. I. [See "The Gies Dental Research Fellowships and Awards for Achievement in Research," J. Am. Col. Den., 5, 115; 1938, Sep.]

Journal

AMERICAN COLLEGE OF DENTISTS



AMERICAN COLLEGE OF DENTISTS

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SEPTEMBER, 1945

Number 3

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American College of Dentists

Dr. Gies says: The usefulness of a society depends largely upon its cohesiveness and solidarity. Constructive criticism and concerted action among the members of an organization are difficult, if not impossible, unless the members either participate actively in the meetings, or are promptly kept well informed regarding current transactions. It is practically impossible for a majority of the members of a large and growing national society, such as the American College of Dentists, to attend its meetings. The College has lacked effective means, during the intervals between convocations, to keep the Fellows in close and animated touch with its affairs. The Committee on Education, Research and Relations, noting these conditions, recommended that a journal be published for this purpose. The recommendation was unanimously approved by the convocation at Chicago, in August, 1933. The JOURNAL OF THE AMERICAN COLLEGE OF DENTISTS embodies this recommendation and this purpose.

This JOURNAL, beginning its career as a quarterly and aiming to promote the welfare of the College, will keep the Fellows intimately aware of the fact that they are active units in a virile and progressive organization, which was created for the general improvement and extension of all phases of oral health-service, and for the continual advancement of dentistry as one of the most useful professions. Nothing that may further these objects will be foreign to the pages of the JOURNAL OF THE AMERICAN COLLEGE OF DEN-TISTS, which will grow with its responsibilities and its opportunities.



WILLIAM JOHN GIES

We hope this JOURNAL will also become a useful influence for the enhancement of lay understanding and appreciation of dentistry's important share in the conservation of the public health.

This JOURNAL supplements the existing resources in dental journalism. It represents a conviction that periodicals issued in the name of and purporting to represent dentistry—and as such seeking the patronage of dentists—should be published by accredited representatives of the dental profession, and conducted in behalf of the public and dentistry under conditions of undoubted financial disinterestedness.

AMERICAN COLLEGE OF DENTISTS

(TWENTY-FIFTH ANNIVERSARY)

THE BEGINNING

The four stories herewith, present to our readers a very good picture of the College in its formation and development, and reasons therefor. The pictures throughout are of those who dreamed the dream and put the dream into reality.—Ed.

J. V. CONZETT, D.D.S.¹ Dubuque, Iowa

Soon after I was inaugurated President of the National² Dental Association in New Orleans in 1919, and following previous conversations

what the American College of Surgeons was to medicine. Therefore, after a good deal of thought, I invited Dr. H. E. Friesell, President-



HARVEY J. BURKHART, D.D.S., Sc.D., LL.D. Founder

on the subject, my first thought turned to the actual organization of an association within the dental profession, that would be to dentistry

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HENRY L. BANZHAF, B.S., D.D.S., LL.D. Founder

¹Deceased November 14, 1944—this being written shortly before his death. ²At the meeting in Los Angeles in 1922, the name was changed to American Dental Association. Elect of the A.D.A., and Dr. Arthur D. Black, President of the Dental Teachers Association, to meet with me in Cedar Rapids in May,



J. V. CONZETT, D.D.S., Sc.D. Founder and Organizer

1920, on the occasion of the convention of the Iowa Dental Society, to discuss the matter. They willingly complied with my request and I placed before them my thoughts on the subject. They enthusiastically endorsed the idea, and we then decided to invite twenty-five of the outstanding men of the profession, to meet with us in Boston on the occasion of the convention of the National Dental Association in 1920. This meeting took place as planned and after a full discussion

in which all freely participated, we decided to organize the American College of Dentists, a professional honor society. This was accomplished on August 20, 1920, with the twenty-five men sitting in the conference named as Founders. Officers were elected at that time as follows: J. V. Conzett, President; H. E. Friesell, Vice President; Arthur D. Black, Secretary, and C. Edmund Kells, Treasurer. A com-



JULIO ENDELMAN, M.S., D.D.S., Sc.D. Founder

mittee was appointed to draft a Constitution and By-laws.

The next meeting of the College was held in Chicago, January 26, 1921, in connection with the midwinter meeting of the Chicago Dental Society. The committee on Constitution and By-Laws made its report which after due consideration was adopted. The salient points



C. EDMUND KELLS, D.D.S., LL.D. Founder

brought out at that meeting were that the organization was one having for its purpose the honoring of men who had made notable contributions to the advancement of the profession, and for the good of society; that the society should have no political trends nor allow the advancement of selfish personal desires. It is organized for the purpose of honoring those who have contributed to the welfare of the profession, and the public and for the stimulation in the minds and hearts of the younger men in the profession, a desire to study and advance their own and the profession's well-being, by study and research, and by honorable living. It was decreed to vest the business of the organization in the hands of a board of five to be called Regents, and that this Board of Regents should elect another, the Board of Censors which should be a secret Board, known only to the Regents



H. EDMUND FRIESELL, B.S., D.D.S., Sc.D., LL.D. Founder and Organizer

who had elected them and whose duty it is to search out the standing and personal character of those who should be nominated to Fellowship. If a nominee was found to be worthy of Fellowship by the Censors, a re-

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port was made to the Board of Regents who should proceed with election to Fellowship. The Regents, having elected the nominees, should send notice of their election, and extend invitation to Fellowship.

Meetings of the College were set to be held at least once a year and



VICTOR H. JACKSON, M.A., D.D.S., M.D. Founder

to be called the "Convocation of the College." Upon such occasions, the nominees were to be inducted into Fellowship and to have the degree of Fellow of the American College of Dentists conferred upon them including the privilege of using the letters, F.A.C.D. after their names.

At this meeting committees were

appointed to develop a diploma or certificate of membership. That committee was headed by Dr. H. E. Friesell of Pittsburgh, Pa. This committee after exhaustive study presented the College with a copy, which is now the certificate of membership or Fellowship in the College. That



C. N. JOHNSON, M.A., L.D.S., D.D.S., LL.D. Founder

their work was well and studiously performed is attested by the beautiful engraving and the sentiment expressed in the words, as it stands today, an ornament upon the walls of any dental office. It is a matter of pride to any possessor. The writer was honored, as the organizer of the College, by being presented the first copy that came off of the press. (Inasmuch as I was the President of the College, and as it would be embarrassing for me to sign my own certificate, Dr. Friesell, Vice President signed it as President and Dr. Black, as Secretary, and thus it adorns the walls of my operatory today.)

A committee on cap and gown was also appointed and which in due time submitted to the College plans for regalia which has developed into that which we now use. The gown is adorned with the colors of the dental profession i.e. lilac and upon the suggestion of Mrs. Conzett, the color of the American Beauty rose was added to the lilac and thus the colors of the College are American Beauty rose and lilac, a combination agreeably acceptable.

Dr. C. N. Johnson, as the committee on Ritual presented the ritual and oath which was used until the recent revision under the very able direction of Dr. Clarence W. Koch, of Little Rock, Arkansas.

As the College grew in numbers and importance and as in growing, various problems arose that had to be met as expeditiously as possible, Convocations of the College were held semi-annually for the first few years. Convocations are now held annually with meetings of Regents and/or meetings of Regents and Section representatives, in mid-year.

This is a brief outline of the beginnings of the American College of Dentists. Later history will be presented by others. That we are proud of the organization and the contri-



ARTHUR D. BLACK, B.S., D.D.S., M.D., Sc.D. Founder and Organizer

butions of the College and its Fellows to dentistry, including its potentialities for good to those within the profession, and those yet to come, goes without saying. We are proud indeed and we look forward with confidence.

H. EDMUND FRIESELL

Reminiscences of the Early Days of the American College of Dentists

H. EDMUND FRIESELL, D.D.S., B.S., LL.D., Sc.D. Pittsburgh

In the development of the story of the American College of Dentists over the last twenty-five years, and the first twenty-five, of its life, I have been asked to submit some of my own reminiscences. Well, to the best of my recollection, here they are. chosen profession. He did much to interpret the work of G. V. Black into realities for his confreres. It was in the minds of this good man and a small group of his friends that the idea of the College had its birth.

At the mid-winter meeting of the



THOS. B. HARTZELL, D.M.D., M.D. Founder

At the outset, I should like to give credit to our friend and fellow laborer in dentistry, Dr. John V. Conzett, who spent so many and ardent years, not only in his large practice, but in very successful efforts to teach and to lead in his



MILUS M. HOUSE, D.D.S. Founder

Chicago Dental Society in 1918 a number of us, who were active in things at that time, discussed the desirability of establishing a college or association along the lines of the Royal College of Surgeons of England but we didn't know just what we wanted to take in and upon what foundation we wanted to establish this new association. There were many things which we wished to see done, that were not being done by the National Dental Association, and we felt that an outside body composed of what we considered leading and



Albert L. Midgley, D.M.D., Sc.D. Founder

reputable men of the profession, could form an organization and look after some of these things themselves, hoping, of course, that ultimately the A.D.A. would take over our findings. That discussion first came up among half a dozen of us at the Chicago meeting in August 1918, and we all agreed to give the matter careful study.

At the New Orleans meeting of the

National Dental Association, October 20-24, 1919, we discussed this further and more formally. We were all so busy with war matters and with recovery from the First World War that we didn't want to take it on immediately, but conditions over which we had no control made it necessary.



ERVIN A. JOHNSON, D.D.S. Founder

At the Iowa State Meeting at Cedar Rapids in 1920, we selected the officers of certain national organizations who happened to be in attendance at that meeting, as organizers, and assigned to them the task of definitely getting the matter started. Conzett was President of the National Dental Association, I was President-elect, and Arthur D. Black was President of the American Institute of Dental Teachers. We were asked and we agreed to select about twenty to twenty-five representative men from different parts of the United States to be the Founders



THOMAS P. HINMAN, D.D.S. Founder

and to make it an official organization.

We met again at Boston at the time of the National Dental Association Meeting, August 23-27, 1920 and held a meeting with all the men whom we had proposed as Founders, and who were in attendance at that meeting. They were taken into membership and the College was established. Dr. Conzett was elected President, I was elected Vice President, Arthur D. Black was elected Secretary and C. Edmund Kells of New Orleans was elected Treasurer. Black, with a committee, was assigned to write a preliminary constitution; another committee was assigned to the ritualistic work; Conzett and a committee were to work out a design for cap, hood, and gown, etc.; and to me was assigned the duty of writing up a statement of the objects of the College and the requirements for Fellowship. I was also assigned the duty



CLARENCE J. GRIEVES, M.A., D.D.S. Founder

of formulating a fellowship certificate and seal of fellowship.

Thus, the organizational meeting of the group that later became the American College of Dentists met in the Copley-Plaza Hotel, Boston, on August 20, 1920, and members of the National Dental Association, who had been written to and who had expressed an interest in the matter, were present to discuss the or-



WILLIAM A. GIFFIN, D.V.M., D.D.S. Founder

ganization. The whole matter was discussed from various angles by practically all of the men present and a committee on constitution consisting of Conzett, Friesell, C. Edmund Kells, A. D. Black, and C. N. Johnson, was appointed. The meeting was adjourned to meet again on August 22 at the same place. At this second session the name American College of Dentists was adopted by vote. The constitution committee presented a constitution and by-laws which were adopted. The first formal meeting of the College was called to be held in Milwaukee at the time of the National Dental Association meeting. In the week of August 15-19, 1921, we were all sworn in formally as Fellows and some other men were admitted.

Dr. Arthur D. Black was Secretary for the organization in Iowa, the founding in Boston and for the first part of the Milwaukee meeting.



FREDERICK B. NOYES, A.B., D.D.S., Sc.D., LL.D. Founder

He then resigned and Albert L. Midgley was made Secretary.

The second meeting of the College was held at the University Club in Chicago, on January 26, 1921, at

H. EDMUND FRIESELL

the call of President Conzett. We were just getting under way and had a lot of loose ends to straighten out. Besides what is shown in the minutes, it was thought advisable to publish the statement of objectives of the College. This was drawn up as follows:

THE AMERICAN COLLEGE OF DENTISTS¹ Statement of Objects and Requirement for Fellowship²

"Every important profession, science or art, has its Academy, Legion, or Court of Honor, to which are



ROSCOE H. VOLLAND, D.D.S., Sc.D. Founder

elected or appointed those who had unselfishly devoted themselves to the advancement of each specific cause.

¹Dental Cosmos; 63,1072; 1921 (Oct.).

²Rewritten and revised; J. Am. Col. Den., 5,1; 1938 (March-June). This has been done not only as a just recognition of meritorious services, but also as an example to younger members that they may be encouraged to nobler efforts.

"Recognition of the need of a similar influence in dentistry has re-



CHAS. E. WOODBURY, D.D.S. Founder

sulted in the establishment of the American College of Dentists. The object of this College is to bring together in a group the men of out-

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standing prominence in the profession and by their united efforts in a field that is not now covered by any dental agency to endeavor to aid in the advancement of the standards and



JOHN P. BUCKLEY, Ph.G., D.D.S. Founder

efficiency of American dentistry. Some of the aims of the College are to cultivate and encourage the development of a higher type of professional spirit and a keener sense of social responsibility throughout the profession; by precept and example to inculcate higher ideals among the younger element of the profession, and hold forth its Fellowship as a reward to those who faithfully follow such ideals; to stimulate advanced work in dental art, science, and literature; and to honor men who have made notable contributions to the advancement of our profession.

"The enormously increased responsibilities of the dental profession to humanity on the one hand; the unprecedented opportunities for exploitation, which have resulted in a wave of mercenary practices that threaten to become a public scandal to the everlasting disgrace of American Dentistry, on the other hand, demand that those elements of the profession whose character, reputation



JOHN F. BIDDLE, D.D.S. Founder

and professional attainments point them out as leaders should be brought together for the purpose of checking the tide of destructive agencies and of encouraging by every laudable means the cultivation of that high spirit of professional and social responsibility, the wholesome influence of which is so greatly needed.

"Inasmuch as there is no title or mark of distinction to differentiate the recent graduate from the practitioner who has devoted many years of faithful effort in the upbuilding of his profession, it is proposed that the Fellowship of the College shall be conferred upon two groups of practitioners, viz.:

"I. Upon those members of the profession who have been at least ten years engaged in the practice of dentistry, whose efforts during that time have been lovally devoted to its advancement, and who are unquestionably looked upon as leaders in their respective communities. Time and effort devoted to teaching in dental schools, to presenting papers or clinics before dental societies, or to organization and executive work of a constructive character; as well as public services or civic duties having a tendency to enlarge the usefulness or the public appreciation of dentistry, shall be taken into consideration when passing upon candidates of this group.

"2. The conferring of the Fellowship shall be held out as a stimulus to young men to induce them to engage more earnestly in those activities which tend to advance dentistry as a profession and for which monetary remuneration must necessarily be sadly out of proportion to the time and effort expended. Devotion to teaching, especially in the non-clinical branches; to research work and to public education, as well as advanced work in the art, science or literature of dentistry, should be greatly encouraged as a consequence of this movement.

"The candidate for the Fellowship in either class must be of good moral character, and have a reputation for ethical conduct and professional standing that is unquestioned. Personality, integrity, education, unselfishness, and high professional ideals as well as freedom from mercenary tendencies, shall be considered in evaluating the qualifications of all candidates for the Fellowship."

It covered the intent and purposes of the organization because many fellows who were curious about it wanted to know.

TWENTY-FIFTH ANNIVERSARY, A.C.D.

THE AMERICAN COLLEGE OF DENTISTS: A REVIEW OTTO W. BRANDHORST, D.D.S.

Secretary, St. Louis

I. ORGANIZATION AND OBJECTIVES

The American College of Dentists was organized on August 20, 1920. Those who established it believed there was need for an organization that would be imbued with the highest ideals for the dental profession and would lend its influence to every movement having for its purpose the advancement of professional objectives and the betterment of dental service to humanity.

The first Constitution contained the following statements as to the general purposes of the College:

To promote the ideals of the dental profession.

To advance the standards and efficiency of dentistry.

To stimulate graduate study and efforts by dentists.

To confer Fellowship in recognition of meritorious achievements, especially in dental science, art, education and literature.

Subsequently, the following was added:

To improve public understanding and appreciation of oral health-service.

To these purposes and objectives the College has steadfastly devoted its efforts and by so doing has created greater opportunities in the profession itself and also elevated dentistry in the eyes of other professions and the public.

2. MEMBERSHIP

Membership in the College is by invitation only and consists of two classes: active and honorary.

Active

Active members consist of dentists and others who have made notable contributions to dentistry, or who have done graduate, scientific, literary or educational work of merit.

As of September 1, 1945, there are 1192 active members.

Honorary

Honorary members consist of those who "through eminent service have promoted the advancement of dentistry or furthered its public appreciation."

As of September 1, 1945 there are 22 Honorary members.

3. ELIGIBILITY

Eligibility to membership is determined by a Board of Censors, after the individual has been nominated by two Fellows from his state or service. Upon the recommendations of the Board of Censors, the Board of Regents may elect and extend the invitation to Fellowship.

A. Basic Considerations a. Educational. The pre-professional and professional training of the nominee must be acceptable for the period obtaining.

b. Organizational. The nominee should hold membership in the major organizations of his profession.

c. Instruction and Teaching. The nominee should have evidenced a readiness at all times to give freely to dental colleagues, privately or publicly, the benefit of any knowledge or experience that may be useful to them. Courses of instruction for remuneration should be given only as an appointed teacher, serving under the auspices of a dental school, dental society, hospital or other accredited professional or educational agency.

d. Professional Ideals. The nominee must possess the highest professional ideals, and uphold constantly the honor and dignity of the dental profession, as well as meet his ethical obligations to his patients, fellow practitioners and society at large. (This positive expression of ideals naturally precludes a negation by such practices as discredit the profession, including employment of, or holding a proprietary interest in, commercial corporations supplying dental products or services to either the profession or the public; giving testimonials for such products or services; participating in radio programs that advertise proprietary preparations; bartering in fees; making charges without rendering commensurate services, dividing fees with

other health service practitioners, or in any other way taking advantage of the uninformed.)

B. Specific Consideration

Beyond the basic qualifications, the nominee must have made contributions to the advancement of his profession and its public appreciation in such a way to merit recognition by the American College of Dentists. Such contributions may have been made in any field of activity worthy of consideration but, whatever the field, the genuineness and quality of contributions are of greater interest than nominal posts or appointments. Thus all nominations should be supported with full particulars in those areas in which the nominee has won distinction, that they may be reviewed, if desirable, to determine quality. For instance, if nominated as a writer, a bibliography of the published articles of the nominee should be supplied; if nominated as a teacher, some description of his contributions should be given rather than the information of mere appointment to a teaching staff; etc.

4. GOVERNMENT

The Board of Regents, consisting of the officers and five (5) elective Regents, constitute the governing board of the College, except as otherwise provided.

The Regents hear the reports of all committees, consider all recommendations of committees before bringing them to the College for

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action; conduct all business matters not otherwise provided for; elect and invite persons to membership and, in general, look after the conduct of the organization.

The Board of Censors, known only to the Regents, considers the qualifications of all persons nominated for active Fellowship and recommends for membership. No person can be invited to active membership unless he has received the approval of a four-fifths vote of the Board of Censors. Local censors are asked to express their opinion on nominations for the information of the Board of Censors and the Board of Regents.

5. MEETINGS

The annual meeting of the College is held at the time of the meeting of the American Dental Association,¹ either prior to or immediately thereafter, and in the same city. It usually consists of morning, afternoon and evening sessions. Fellowships are conferred at that time and the meeting is referred to as the annual Convocation of the American College of Dentists.

The Board of Regents has at least two meetings each year, one at the time of the meeting of the American Dental Association and the other at the time of the Chicago Mid-Winter Clinic meeting. Occasionally, extra meetings of the Board are held.

The Sections of the College hold

¹Prior to 1922, National Dental Association. their meetings in accordance with their own plans and desires.

Representatives of Sections meet with the Regents, usually at the time of the Chicago Mid-Winter Clinic meeting, to discuss College affairs.

In emergencies, such as the war, the Board of Regents may ask the Sections to complete the conferring of Fellowships for the Board.

Special meetings of the College, or the Board of Regents may be called, according to the By-laws.

6. COMMITTEE ACTIVITIES

The College is not a one-man organization. It has in its ranks the most conscientious workers in the profession. Besides the usual committees associated with organization activities, there are many other standing committees. These committees make thorough studies in the fields assigned to them, and present annual reports that are intended to further the best interests of dentistry as a profession.

During the years that have elapsed since the organization of the College in 1920, its interests and activities have increased with the needs of the times, and have become more varied as dentistry as a profession broadened its field of usefulness. In efforts to advance the welfare of the profession, the College has continually encouraged high educational standards and research. Its committees on Education and Research regularly report their findings and offer recommendations. The College has been an ardent supporter of dental research, and in years past has been one of the main financial supports for the Journal of Dental Research as well as the William John Gies Endowment Fund for the Journal of Dental Research. The Board of Regents, believing that through research a better dental health service would result and a closer medico-dental relationship would be established, has formulated plans for the granting of research Fellowships and grants-in-aid to men in various fields of research, upon recommendation of the Committee on Research.

Through the committees on Hospital Dental Service and Oral Surgery, a better understanding between the health-service professions has been created and the foundation has been laid for a much closer relationship in the future.

The profession, years ago, set up a code of ethics that resulted in our present splendid American Dental Association, and took hold of dental education by placing the dental schools in a new relationship with universities. So in the field of literature, the profession desires to terminate commercial control of dental journalism.

In 1932, after several years of intensive study, the Commission on Journalism published a report that pointed out the need for the control of its journalism by the profession. Subsequent yearly reports have supported these findings and continued the battle for the elimination of commercial influences.

The following statement expresses the sentiment of the College on this matter:

The American College of Dentists, through its Committee on Journalism, has gone on record as supporting the principle that the publication of dental periodicals for the profession should be under the control of the profession.

This control in no way restricts freedom of speech or of the press. On the contrary it gives assurance of freedom of expression by eliminating the influence of commercial interests. The American College of Dentists disapproves of any effort, by individuals or groups, that tends to make mockery of the principle or seeks ways to circumvent it. Neither should advertisements of products not complying with the requirements of such agencies as the Council on Dental Therapeutics of the American Dental Association, the Bureau of Standards, etc., which have been established to determine the merits of a product or the desired requirements of material, be accepted by professional organizations either for their journal pages or for exhibits at their meetings.

It is believed that these principles are in keeping with the highest traditions of the profession and persons being considered for Fellowship in the American College of Dentists are expected to subscribe to them. Their observance is a duty which the profession owes to its members and to the public.

The College is cognizant of the interest of its members and the profession generally in better standards and protection. Through the committees on Prosthetic Dental Service, Legislation, and Certification of Specialists, the College seeks ways and means to improve existing standards and also to protect the public.

The College is also investigating conditions in the many relationships with the public and other organizations. Its committees on Relations and Socio-Economics have been making detailed studies. If and when the need arises, information of the greatest importance will be available.

In 1932, the American College of Dentists supported the study of Health Insurance in Europe, resulting in the publication of "The Ways of Health Insurance," by Nathan Sinai.

More recently, the committee on Socio-Economics undertook a study of the service records of Dental Health, Inc., New York City, to ascertain the cost of dental services. This resulted in the publication of "Cost of Dental Care for Adults under Specific Clinical Conditions" under the authorship of Dorothy Fahs Beck, in 1943.

There are other committees, such as Committee on History, Endowment and Ceremonial, and special committees, which serve to round out the activities of the College in various directions. Special committees and additional standing committees are appointed from time to time to consider special problems as they present themselves.

The College has been able to bring about many recognitions of dentistry, one of the most important of which was the admission of dentistry into membership in the American Association for the Advancement of Science, where dentistry is now an active section.

7. JOURNAL

The Journal of the American College of Dentists is published quarterly, in the months of March, June, September and December. It exemplifies what we believe is the highest type of professional journalism. It is sent to all members in good standing.

The Journal staff consists of an Editor and an Associate Editor and ten (10) Contributing Editors. The Board of Regents with this editorial staff constitutes the Editorial Board.

8. SECTIONS

The membership of the College is representative of the dental profession in the United States, Canada and several foreign countries.

Wherever there are sufficient Fellows in an area and it is their desire, a section may be formed with the approval of the Board of Regents. The object of such a section is to carry on the work of the College in its community and to solve local problems as they relate to the College and the profession at large.

There are at present twenty (20) such Sections. They send representatives to meet annually with the Board of Regents, where College problems are discussed.

During the war emergency, the Sections have been asked by the Board of Regents to complete the conferring of Fellowship upon those persons who found it possible to present themselves at a Section meeting for that purpose.

9. COURSES OF INSTRUCTION

The College takes the position that courses of instruction in dentistry should be under the auspices of the profession. To this end the Constitution provides for automatic forfeiture of membership when (a) "courses of instruction in dentistry are given for remuneration under any auspices other than those of a dental society, dental school, or other professional or educational agency"; or (b) "courses of instruction in dentistry are given in a privately owned undergraduate or post-graduate dental school, or in a school associated with an independent hospital or dispensary but not an organic part of it"; or, (c) "exorbitant fees for courses of instruction in dentistry are exacted, under any auspices."

The By-laws interpret this provision to mean "that in accord with the designated and implied obligations of membership in the College, each member will be fraternally ready at all times to give to dental colleagues, privately and publicly, the benefit of any knowledge of, or experience in, dental practice he may have that would be useful; but will give courses of instruction in dentistry, for remuneration, only as an appointed teacher serving publicly under the auspices of a dental school, dental society, hospital or other accredited professional or educational agency."

10. THE PLEDGE

Every active Fellow takes the following pledge when Fellowship is conferred upon him:

"I have read a copy of the Constitution and By-laws of the American College of Dentists.

"Recognizing that the American College of Dentists seeks to exemplify and develop the highest traditions and aspirations of our calling, I hereby accept, as a condition of Fellowship in the College, all its principles, declarations and regulations.

"I pledge myself, as a member of the American College of Dentists, to uphold to the best of my ability the honor and dignity of the dental profession, and to meet my ethical obligations to my patients, to my fellow practitioners, and to society at large.

"I also pledge myself to refrain from all practices that tend to discredit the profession, including em-

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ployment, or holding a proprietary interest, in commercial corporations supplying dental products or services to either the profession or the public; giving testimonials for such products or services; participating in radio programs that advertise proprietary preparations sold to the public; bartering in fees; making excessive charges without rendering commensurate service; dividing fees with other health-service practitioners, or in any other manner taking advantage of the ignorance or confidence of the patient.

"I further pledge myself to de-

vote my best endeavors to the advancement of the dental profession, and to perfect myself in every way possible in the science and art of dentistry. I shall be ready at all times to give freely to dental colleagues, privately or publicly, the benefit of any knowledge or experience I may have that would be useful to them; but will give courses of instruction in dentistry, for remuneration, only as an appointed teacher serving under the auspices of a dental school, dental society, hospital, or other accredited professional or educational agency."

ORGANIZATION, IDEALS AND ACHIEVEMENTS OF THE AMERICAN COLLEGE OF DENTISTS

ALBERT L. MIDGLEY, D.M.D., Sc.D. Providence, R. I.

When a professional organization has reached its silver anniversary, its initial purposes and early achievements may be surveyed in perspective, and the program planned by its founders may be judged by the results recorded. In the process of evaluating the service rendered to dentistry by the activities of the American College of Dentists, a series of pertinent questions may be proposed and answered in some detail. Why was it organized? How is it organized? What are its ideals? What have been its aims, purposes, policies and objectives? How does it operate in the pursuit of these ideals and objectives? What influences have accelerated or retarded its growth and usefulness? What has it actually accomplished? How have its attainments affected the beneficient growth of the profession it represents?

The existence of such an organization as the American College of Dentists is in itself a testimony to the serious purposes and compelling ideals of its founders: its attainments furnish proof of their clear vision, their wisdom and their sincerity. They had surveyed the prevailing conditions, situations and influences which affected the progress of the dental profession, and proceeded to formulate their program in accordance with their ideals of strength, solidarity and thorough efficiency. The main purpose of this article is to show how these ideals have controlled the College in the formative years of its development.

In order to understand why the College was organized, one must picture the *status quo* of dentistry at that time. The dawn of the new era in dentistry appeared in 1910 with the advent of the focal infection theory, which inspired new purposes and ideals, produced new obligations and new opportunities, and cast upon certain phases of dental education and practice those shadows of doubt which the splendor of truth will always cast upon whatever is dim, dubious and ill-conceived.

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The new era demanded the abandonment of vocational training as the sole requirement for admission to dental practice, and the adoption of an academic standard at least equal to that of medicine. This was obviously necessary if dentistry was to be a profession not in name only but in reality as well, and to occupy a position equal to that of the other learned professions. Moreover, the focal infection theory implied that continuance of the autonomy of dentistry was dependent upon collaboration of dentistry and medicine in the solution of problems of common interest and concern. Furthermore, it focused sharply, by implication, upon the significance of the disproportionate growth of the engineering phases of dentistry over the biological.

This new outlook for dentistry offered a challenge and an inspiration to forward-looking dental leaders, to whom it brought enlightenment, courage and hope: for it envisioned the new professional status of dentistry, a status in all respects equal to that of medicine—equal in educational opportunity, in united effort for scientific advancement, in altruistic acceptance of responsibility for safeguarding the public health, in freedom from all taint of commercial influences and mercenary practices, and in deserved enjoyment of the respect and esteem of the community at large. The paramount concern of the founders of the American College of Dentists has been, from the first, the attainment of this ideal. It is the very core of dentistry's idealism, upon which all other ideals rest and from which they evolve; it is the nucleus from which its attainments take perceptible form. "The ideals of dentistry are, and must ever be, nothing short of the ideal *in* dentistry."

This proposition implies the corollary that dental education must function under university ideals and auspices, where it properly belongs. To occupy its proper place in the family of professional excellence, it must meet tests of university discipline and control required of all other professional schools, and enjoy university support to the same extent as is granted to all other professional schools. These ideals are intimately related and inseparably linked, for they alone ensure the stability and growth that are requisite for a true and permanent professional standing and development.

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The American College of Dentists was founded chiefly to support and maintain the theory and practice of these ideals. Its policies and programs, its thoughts and its energies,—at all times, but especially during the early years of its growth,—were directed to the translation of these ideals into enduring realities. Most of the progressive developments of dentistry's growth in education, improved teaching, research, literature, journalism, professional ministrations and practices, since the College was founded, have been attained under these ideals. Everything that the College has enunciated, from its beginning to the present time, has been inspired by these ideals and contributes to their enduring vitality. Verily they are its guiding star.

That dental leadership was wide awake directly before and shortly after the arrival of the focal infection theory is emphasized by the organization of the Dental Educational Council of America in 1909 and the International Association for Dental Research in 1920. The one devoted its activities to the elevation of dental education, the other to the promotion of dental research. Both were dominant influences in the birth and development of the new day in dentistry which dawned about 1919. The Educational Council enforced its ideals by its inspection of schools, publication of its "Minimum requirements for Class A Dental Schools," and impartial classification of the schools in this country, together with its historic declaration that any school conducted for profit did not meet the Council's interpretation of fair ideals in dental education. The International Association for Dental Research grew vigorously, and steadily maintained its scholarly ideals, percepts and unity of effort. It is no flight of fancy to believe that the Dental Educational Council of America and the International Association for Dental Research played their parts, with the focal infection theory, in stimulating the surge of interest in dentistry's program at that time, and sustaining it in the years following, to the present moment. The acceptance of the focal infection theory, and the contributions of the Dental Educational Council, and the International Association for Dental Research, may be appropriately termed the exciting influences in the birth

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and development of the new era in dentistry. The force of these three influences was certainly instrumental in bringing about the founding of the American College of Dentists in 1920, and the study and survey of dental education began by Dr. William J. Gies in 1921, under the auspices of the Carnegie Foundation for the Advancement of Teaching.

The detailed information gained from the Dental Educational Council, through its many and varied activities and experiences, was invaluable in determining what some of the functions of the American College of Dentists should be. This was a priceless resource, for it expanded the knowledge and supported the judgment of the founders in determining fundamental preparations and future growth. In appraising the values of this influence, it is interesting to know that some of the founders were members of the Dental Educational Council and all of them had experience as deans or teachers in our dental schools, and were therefore competent to interpret and evaluate correctly the worth of the activities of the Council. This fund of knowledge and experience prepared the minds of the founders to recognize easily and clearly the changes necessary for improving the status of dentistry, and transmuting a bare p'an into an inspiring, encouraging and influential conception, not merely of what the College ought to be, but also and especially what dentistry should be.

With these resources, and the knowledge and judgment born of experience, the founders had a clear and accurate perception and a practical idea of what their aspirations and expectations should be, as well as what the ideals of the College should be, and how their realities might be translated into action. Thus, growing in wisdom and stature, the College built on a sure foundation, proceeded confidently in its pursuit of the good and elimination of the evils which had impeded dentistry's progress.

It may be well at this time to clarify the relation of the American College of Dentists to the American Dental Association. The paramount obligation of the American Dental Association is to direct the conscience and shape the ideals of American dentistry to

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a future of dynamic purposes and relationships. One of the foremost objectives of the American College of Dentists is to assist the American Dental Association at all times in the attainment of this goal. The College is simply an instrument for better dentistry; and any project it has promoted or is promoting is the property of the American Dental Association whenever the latter sees fit to accept and use it. It is not and never has been the purpose or desire of the College to interfere in any way in the affairs of the American Dental Association. A fundamental principle underlying everything the College has done is embodied in the maxim, "How best can the public welfare be served through dentistry?" It operates under this ideal at all times in seeking to attain its objectives.

Basic in the formula of the American College of Dentists for eliminating weaknesses and deficiencies and attaining excellencies is a workable Constitution and set of By-Laws by means of which plans, policies and programs may evolve and be developed. In the early years of its career, the College gave much consideration to drafting and perfecting its Constitution and By-Laws, selecting and assembling those essentials which a permanent professional organization requires. It aimed to draft an instrument so planned that the executive function would be supported at all times by effective organization, deputization and supervision, and so designed that it would meet the exactions of a changing environment without extensive revision or alteration.

The officers and elective Regents constitute the governing board of the College, who transact all its business and guide its professional affairs.

As regards standing committees, the Regents hear all reports and consider all recommendations before presenting them to the College for action. It is their duty to see that the activities of the standing committees are properly organized, deputized and supervised, and so instruct the various chairmen.

To answer the question, "How is the College organized?" a brief comment on the setup of its standing committees will be typical of the entire organic structure, and may well convey an idea of the

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size and flexibility of this instrument and the mechanism of the Constitution and By-Laws. It may also show how the interdependent parts are arranged, and how plans and programs are systematized or constituted into a consistent whole. Standing committees are appointed by the President for a one-year term, except the Nominating Committee, which is indicated in the By-Laws.

Serious consideration is given by the Regents to the selection of committee personnel, with due attention to character, ability, aptitude, interest, enthusiasm, record of past performance, present activities, and the professional, educational and civic atmosphere in which the selectee has grown.

Since the work of standing committees is the lifeblood of an organization and represents its measurable progress, the Regents believe that the activities, attainments and reports of committees should reflect the deliberative thinking and judgment of the entire personnel of each committee; and that the full power and vitality of committee membership should be utilized, each member taking his proportionate share of labor and responsibility, so that the work does not lag and that plans and programs operate on schedule. Consequently, a model procedure for standing committees was provided, designed to promote uniformity of practice, economy of effort, continuous attention and maximum effectiveness in the committeework of the College. The Regents believed that one of the primary purposes of the committee is to stimulate continuous attention throughout the year, that the work of committees may always have timely consideration by all members, and not fall behind schedule. For intermittent attention fosters procrastination, and procrastination begets indolence, which easily degenerates into indifference and eventually dulls the sense of responsibility. Recognizing the undesirability of too much committee work, the College precludes dual membership in standing committees. The Regents have adopted the principle that a multiple wideawake membership must necessarily preclude one-mind performances, hit-or-miss thinking and haphazard doing, as well as useless or protracted oral discussion of correspondence.

After the Constitution and By-Laws were adopted, the College passed on to a consideration of plans, policies and programs for the attainment of its ideals and objectives. With the principles of government set up by the Constitution and many details related to their application itemized, implied or simplified in the By-Laws, it was a relatively simple matter to formulate a well-planned program of procedure.

Plans, policies, programs and recommendations of such committees as Certification of Specialists, Dental Relations, Education, Endowments, History, Hospital Dental Service, Journalism, Oral Surgery, Prosthetic Service, Research and Socio-Economics still require an endless amount of time, effort and deliberation before their interdependent parts are assembled and put into motion.

During the formative state, the College spent much time studying how to transpose things of the mind and heart into dynamic realities: substituting the concrete for the abstract without losing either form or essence: translating into action the thoughts, ideas and ideals which the knowledge of the new day brought to dentistry, and thereby laying a foundation upon which professional ideals might grow into practical realities.

In the earlier years, the discussions, deliberations and recommendations of standing committees were not sufficiently definite to be used to advantage for the direct attainment of ideals and objectives. Consequently some problems had to await the strength, enlightenment and power of action that time eventually brings. But the more pressing and pernicious practices were dealt with as an urgent necessity. Fortunately, the means for their extinction were at hand, to be easily and effectively applied. The extent of the College's accomplishment in removing these vicious influences is truly remarkable and most encouraging, for it has opened the door to wider opportunity and full-time service in the development and strengthening of constructive influences.

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Following the organization of the College, the need for basic studies and surveys to attain a full measure of usefulness was both urgent and apparent. From the very beginning, the importance of these desirable and essential activities was recognized by the founders of the College. At that time, common sense and good judgment dictated that action should be deferred until the masterly report by Dr. William J. Gies for the Carnegie Foundation for the Advancement of Teaching was published in 1926. Promptly thereafter, the College sponsored and financed a study and survey of health-service insurance in European countries, sending two experts to Europe to study and report on conditions and programs in those countries. The value and importance of this undertaking has been recognized by the Committee on the Costs of Medical Care, the Socio-Economics Organization of the American Medical Association, and educators and social workers in various fields.

The study and survey of dental journalism sponsored by the College was a masterpiece, and its influence priceless, for it brought about the suppression of most of the proprietary journals, and gave dignity and significance to the phrase "dental journalism and literature." Following the report on dental journalism, interest in proprietary periodicals wavered, waned and withered to such an extent that many trade-house journals were eliminated. The oldest and best-known printed its last pages shortly after the report was issued. A precipitous drop in the number of such publications immediately resulted, and the few that remain are tolerated more or less as a persistent but innocuous nuisance.

Very soon after this historic report, the American Association of Dental Editors and also the Journal of the American College of Dentists were established. Shortly afterwards there was notable improvement in the content and quality of the Journal of the American Dental Association, and also in the publications of several state societies, and those representing the specialties of dental practice.

Nothing so influences the growth of a profession in character, reputation and usefulness as continuous activity in its special fields

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of research. Conscious of the values of research, the College has lent its influence in every way possible to its promotion. From the beginning it has supported the Journal of the International Association for Dental Research, financially and otherwise, and later extended an invitation to the International Association for Dental Research, which was accepted, to appoint a committee to become affiliated with the Committee on Dental Research of the College.

The College was instrumental, with the help of Dr. William J. Gies, in having a dental section established as a component part of the American Association for the Advancement of Science. This is a significant attainment, and has far-reaching implications.

Practical interest in the promotion of research was emphasized when the College established the William J. Gies Award for meritorious service in the field of research, and the William J. Gies Research Fellowships and Grants-in-aid, for the purpose of interesting young men who were desirous of exploring the empire of the unknown and studying some of the unsolved problems of dentistry.

In addition to all this, the College has been a directing influence for betterment in the progressive programs of the Association of American Dental Schools and the American Association of Dental Examiners, since many of their members are or have been officers or Regents of the College or members of standing committees. They have brought the atmosphere and ideals of the College into the deliberations of these national organizations as well as to local societies throughout the country.

The College has always been interested in the adoption of the highest possible standards of education for entrance into our dental schools, and in the enforcement of entrance requirements. There was formerly a wide divergence between published requirements for admission and actual practice in administering the regulations. Four years previous to the enforcement of two years of preprofessional collegiate education, the scholastic credentials of candidates for admission to the dental schools of the United States were evaluated for the Dental Educational Council of America by the Registrar of Brown University, through the influence of the College.

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Thus, a sure and permanent foundation for universal improvement in dental education was established. Such recognition by a University that holds membership in the Association of American Universities not only indicates the interest of outsiders, so to speak, in the educational program of dentistry, but stimulates and encourages dental leadership.

The College was founded to promote the ideals of the dental profession; to advance the standards and efficiency of dentistry; to stimulate graduate study and effort by dentists; to confer fellowship in recognition of meritorious achievement, especially in dental science, art, education and literature; and to improve public understanding and appreciation of oral health service. If any Fellow of the College who has a keen, accurate and comprehensive idea of the status of dentistry twenty-five years ago will compare that view with its standing at the present time, is it not fair to assume that he will be somewhat dazzled by the brilliant achievements of the last quarter-century?

Finally, the founders would be graceless and ungrateful if they were to ignore the splendid cooperation and interest displayed by some of our honorary members who have served faithfully and with distinction on important committees. Fortunate indeed are those who have such men in their midst, so genuinely inspiring and so admirably fitted to assist in directing and promoting the affairs of an influential organization.

In conclusion it may not be amiss to quote a part of the Presidential Address of 1937: "We should bear in mind the fact that nothing is an end in itself, but only the opening of another of those vistas of opportunity which renew the vitality and stimulate the wholesome activity of an organization which makes leadership its function. The College will go forward with its long-range program, enlarging its membership by careful choice of able and distinguished men; organizing sections to study and improve the status of dentistry in their local environments by systematically coordinating their efforts with those of the College; making each annual meeting an outstanding contribution to the growth of dentistry in idealism and

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practical service; keeping touch with each Fellow through its publications and reminding him that he in his place represents the College in its ideals; binding together the dental profession as a whole by informing it of all constructive activities; undertaking a succession of important tasks in the service of what is most worthy in dental practice and in the dental profession, and meriting thereby the special support of philanthropists; and giving appropriate honor and publicity to the historic achievements of dentistry. By such planning and such performance the College has made itself a powerful center of professional aspiration and influence."
THE DISCOVERY OF THE PRIMARY DENTITION¹ GABRIELE FALLOPIO

An annotated translation by CHARLES DONALD O'MALLEY, M.A., PH.D., and J. B. DEC. M. SAUNDERS, F.R.C.S. (Ed.)

Introduction. The name of GABRIELE FALLOPIO (1523-1562) is sufficiently familiar in the eponyms of the Fallopian tubes and the Fallopian canal of the facial nerve. He was a man of great investigative originality and his observations pertain not only to the structure of the sexual organs and of the auditory apparatus but also extend to most other fields of human anatomy, where he made discoveries of the first importance. FALLOPPIUS, to give the Latinised version of his name, was born at Modena in 1523. His youth was spent in dire poverty. He was for a time in the service of the church, but he soon turned to the pursuit of medicine and before his formal entry into medical school had already begun to practice surgery and when a young man of 21 and while still residing in his native city obtained the unusual privilege of dissecting the body of a condemned criminal. He studied anatomy under VESALIUS at Padua and later enrolled in the medical school of Ferrara where he remained from 1545 to 1548. Owing to his great promise, he was chosen by Cosimo de' MEDICI to occupy the chair of anatomy at Pisa which he held until 1551 when he was called to that of Padua, now vacant owing to the resignation of REALDO COLOMBO, pupil and successor to ANDREAS VESALIUS.

FALLOPPIUS was without doubt the greatest of the anatomists to succeed the "divine VESALIUS." With great modesty and hesitancy he sought to emendate and augment the great structure of anatomical knowledge erected by his distinguished predecessor. VESALIUS in his great masterpiece, De humani corporis fabrica, had devoted a chapter to the anatomy of the teeth [see SAUNDERS and O'MALLEY,

¹From the Division of Medical History and Anatomy of the University of California Medical School, San Francisco, California. See also footnote, No. 1, J. Am. Col. Den., 11, 211; 1944 (June).

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J. Amer. Coll. Dent., 1944:11:211-18], by no means the most brilliant example of his writing, but nevertheless indicating the position of dental anatomy in the year 1543. FALLOPPIUS like VESALIUS was fully alive to the value of personal observation and in 1561 published his Observationes anatomicae in which among other contributions of an important and fundamental nature, he devoted some space to the teeth, adding to and correcting the opinions previously expressed by VESALIUS. The work of earlier authors on the anatomy of the teeth is for the most part devoted to static descriptions and the question of their growth and replacement remained extremely obscure. VESALIUS had completely failed to recognize a primary and secondary dentition as such. He regarded the primary dentition as being analagous to the epiphyses of bone and he believed that these epiphyses fuse in the course of time with the root of the tooth and also thought that this epiphysis might be shed in childhood; a new one presumably taking its place in the formation of the secondary tooth of the adult. The Observations of FALLOPPIUS are of the greatest significance in that they constitute the first clear recognition and description of the primary dentition, the follicle of the tooth bud, and the mode of growth and replacement by the secondary tooth. Even more remarkable is his recognition, long before the development of the microscope, of the dental lamina and his appreciation of the significance of this structure in giving rise to the new follicle. We are not aware that FAL-LOPPIUS has ever been credited or recognized for this important fundamental contribution and we hope that the dental profession will find the words of this sixteenth century savant to be of some interest in relationship to the historical development of dental concepts.

FALLOPPIUS was succeeded by his pupil FABRICIUS of Aquapendente, the first great modern embryologist and teacher of WILLIAM HARVEY. It is doubtful if any school can show a more distinguished coterie than these three—VESALIUS, FALLOPPIUS, FABRICIUS—a triumvirate whose genius established the great University of Padua as the world's leading center for anatomical studies for over a century.

DISCOVERY OF THE PRIMARY DENTITION

The translation is made from the text published in Leyden, 1725, edited by H. BOERHAAVE and B. S. ALBINUS in the Opera omnia of ANDREAS VESALIUS, vol. II, pp. 701-3, and does not in any way differ from the editio princeps, Venike, 1561.—The Authors.

I would have you, most learned PETRUS,² observe with me the remarkable nature of the small sockets in the upper as well as in the lower jaw which is such, that although they are osseous and have almost a honeycombed appearance, nonetheless they are stable neither in shape nor in number. For some of them are formed anew, some perish and are obliterated, which perhaps seems incredible. However you know I have in no way imagined these things, but in many private and public dissections I have observed them with my own eyes and have pointed them out to my students. Such then is the nature of these small sockets that whenever a tooth is extracted no new one sprouts forth, but the socket at once shrinks, grows solid and no trace of it is evident. Indeed, if the tooth falls out and a new one is substituted for it, the latter excavates for itself a new socket similar to that previously obliterated. From this I gather that even up to extreme old age, some power remains in the teeth whereby they may grow and acquire shape; the same thing occurs in both upper and lower jaw to the extent that around the seventieth year new sockets are sometimes formed for the erupting genuini and in final old age the sockets of those teeth which are shed also become obscured, which would not occur unless that vital formative power was still living in the bones.³

I now come to the teeth in which I shall omit the dispute as to

²PETRUS MANNA of Cremona, physician to FRANCESCO SFORZA, Duke of Milan, to whom the Anatomical observations of FALLOPPIUS are addressed.

³Literally the "cheek teeth" derived from genae, cheeks, and a term commonly employed in former times for the third molar, although CICERO and many others so called both molars and pre-molars. Eruption of the wisdom tooth in the seventies would be certainly unusual, but FALLOPPIUS is here giving an extreme instance to emphasize the persistance of what he calls the remarkable formative power of bone. It should also be pointed out that in the sixteenth century the ages of man were very specifically divided into seven periods. Compare the famous speech of Jacques in As You Like It, of final old age and decreptitude, "Sans teeth, sans eyes, sans everything."

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their number⁴ and the roots by which they are attached, and advance to their formation. But I have observed one thing, namely that all the teeth contain a cavity, large or small in proportion to their mass, which is lined by a very thin membrane endowed with a highly selective power of sensation which is the reason that they possess sensibility. Hence it is that the teeth possess the feeling of heat and cold, but not of wetness or dryness, nor do they give rise to pain when there is "solution of continuity,"5 unless it extends to this membrane. I believe that the reason for this is that as the qualities of hardness or softness or dryness or wetness are not communicated directly to the membrane, therefore no sensation is present. But the spirit⁶ contained in the dental substance when affected by hot or cold materials immediately communicates the alteration from the surface to the deeper parts and to the membrane, whence the sensation occurs because the membrane is affected. But, in "solution of union," in attrition and in grinding, since the membrane is not affected there is no pain or sensation present. There are some anatomists to be found, who assert (so I hear) that this membrane is formed from a mixture of artery, vein, and a small nerve, three vessels which extend separately to the tooth. In truth, this opinion seems very much like that of some ancient anatomists, that the nails are

⁴Owing to authoritarian tradition a considerable dispute had arisen as to the precise number of the teeth. ARISTOTLE and many others had said that the male possessed a greater number than the female. Cf. *Historia Animalium* 2:3:501b; PLINY, lib. XI, 114. Vesalius had said, "As no one is prohibited from counting the teeth, it is obvious that it is as easy for anyone to test this assertion as it is for me to say that it is false." *Fabrica* 1:Xi:46. GALEN (*De ossibus*) had believed that the teeth were solid; a view first corrected by VESALIUS. However the question of the existence of a pulp cavity was still a matter of dispute between the "die hards" and the anatomists of the new school.

⁵"Solution of continuity" is a technical term, current in the elaborate classification of the sixteenth century and in this instance of course means an erosion of the tooth, i.e. dental caries.

⁶The "spirit" is the so-called animal spirit which according to the humoral doctrine and prior to the discovery in the eighteenth century of the function of the motor and sensory nerves, was supposed to flow from the central nervous system into the nerves, deemed to be hollow, and to be the medium which carried motor and sensory impulses to the brain.

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formed from nerves, skin, flesh and bones mixed together as Galen testifies in [book] II of the De administrationibus anatomicis. That small nerves, veins and arteries reach the roots of the teeth, is not to be denied; but say what they will, I do not follow how those, who did not see the separation at the chin of a very immature mandible, yet could with the eyes of a lynx observe the mixture of such slender vessels. For if the innermost cavity of the tooth appears to pulsate when attacked by an inflammation, as was at one time experienced by the divine Galen, this happens because an arteriole extends to its root. Perhaps this vessel does not enter the cavity of the tooth at all (although we cannot confirm this with the eve) and not because these vessels [artery, vein and nerve] are mixed together to form the membrane. Seeing that the shape of the artery would be deformed, there would in consequence be an impulse of pulsation. The cavity occupies the whole tooth excepting that part which is bare of the gum and which requires greater solidity for the grinding of food. It is in the former part that painful caries arises and sometimes worms' are gathered, which in man are painful to a remarkable degree. Therefore you should observe this very closely.

There is another aspect of the teeth, so I understand, which is not at all acceptable. Because anatomists sometimes see the extremities of the extracted teeth of children to be soft and, as it were, hollow, they have come to the conclusion that the teeth possess appendices [epiphyses] which fall out while the remaining source of each tooth grows up from beneath. The divine VESALIUS would not have said this to be true at all if he, in perfecting the art, (a criticism which cannot in anway detract from him) had very diligently observed the skull of little children and especially of those which, owing to abortion, were born incomplete [i.e. premature]. Wherefore that you may appreciate most fully this matter of the teeth, I shall treat of a few of its aspects.

⁷The idea that toothache was caused by worms has a very early origin in folklore. The conception can be traced back to the era of Babylonian civilization and no doubt arose from a misconception as to the nature of the nerve filament seen at the root of the extracted tooth.

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There are two periods in which the teeth are begotten. One, in utero after the generation of the facial bones, at which time twelve are formed in the upper jaw and the same number in the lower, that is to say, six on the right side of each jaw and six on the left. Of these, four are called incisors, two canines, and six molars; that is to say, three placed on either side, all of which are incomplete and without roots and lie hidden in their small sockets. The sockets are likewise twelve in number and lie under the intact gums, as I have observed many times in cadavers. However, it should be noted that once or twice at the most in this first generation of teeth in the mandible or in the upper jaw, I have found only four molars. two on each side. When these four have been acquired and the remaining six are added they make the number ten in the upper jaw, as well as in the lower. When the child is born, these teeth are composed of differing materials, in part osseous and hard, in part soft. The forward part by which they are going to erupt, is osseous and hollow, the hinder part, very soft and humid, and they are seen to be covered by a sort of very thin pellicle [dental sac] which also appears in the origin of feathers when still immature. Whereas that part which projects above the skin is horny^s and hard, that

⁸There is substantial agreement among recent research workers that the enamel of the teeth is essentially a keratin saturated with inorganic salts. Therefore, at first sight FALLOPPIUS' statement that the tooth is composed of a horny substance might be taken as indicating some unusual insight into the fundamental nature of the tooth substance. This interpretation would, however, be entirely false. The entire conception here expressed, is in fact derived from the ancient biochemical and physiological notions of ARISTOTLE and GALEN. According to the earlier writers it was believed that the so-called less noble parts such as the nails, the hair, feathers, horns, etc., was derived from the excrementitious residues. That is, after the more noble parts such as the heart, liver and the like had satisfied their wants from the nutritive materials, the remnants or residues were then employed in the formation of these structures. The word excrement employed in this connection does not correspond to its modern usage. The idea that clotted blood gives rise to the anlage of the tooth, is likewise derived from these sources. It arose from early observations on the development of the chick embryo and the very early appearances of the heart and liver, which in these stages, resembles a small clot of blood. As the teeth are regarded as being cold in quality, the idea that they might arise from clotted phlegm or pituita is quite logical according to the humoral doctrine.

however, which lies hidden elsewhere, appears soft or humid and is formed either of clotted blood or pituita.

Thus it is observed in these teeth, that that part which appears first, is hard and osseous, and the middle and terminal parts which lie hidden, are soft like clotted phlegm. When the teeth erupt this material grows hard gradually and becomes osseous and hollow within, and forms the roots. Thus it happens that if we were to boil the skull of a new born but complete child [i.e. full term], the hinder part being so soft is dissipated by the cooking process so that only the osseous part, which was extruded from the gums, remains and is recognized as a tooth. But if an uncooked skull is dissected the hinder part can also be recognized without difficulty, which, as was said, in the living animal gradually becomes hardened and osseous; a transformation which occurs over an interval of several years. Hence it happens about the seventh year, more or less, that when the teeth are extracted or the incomplete ones expelled by those growing from beneath, the so-called appendices [epiphyses] of certain of the roots, which still remain, are seen. For when a tooth has been broken, the soft part with its pellicle is left in the socket or it is supplanted by another which extrudes the first.

The second period in which the teeth are begotten is after the foetus has come into the world and before the seventh year. For from certain seeds of generation lying hidden in the facial bones, ten teeth arise; that is to say, on each side, above and below, five on the right and five on the left. Of these, four are incisors, two canines and four molars. Of the molars, two are those which follow directly the canines, and two are those which are called $\sigma\omega\phi\varrhoovi\sigma\tau\eta\varrho\varepsilon\varsigma$ [wisdom teeth] by the philosophers and the Greeks and by us the genuini [cheek teeth]. The six anterior members of this group when they erupt expel the primary teeth and replace them, but if it happens by chance, that for any unknown reason or through negligence in their care, the primary teeth are not extracted or fall out of their own accord, these secondary teeth nonetheless, having paved a way for themselves through new sockets in the facial bones, but a little further back, erupt into the jaw. Thus a new order of

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teeth (however much it may vary) is seen to have arisen, which has often misled both writers and anatomists. Of the remaining four which are molars, the two last "cheek teeth" (genuini) never drive out others from their place, since they arise around the twenty-first year and even up to the thirtieth. Sometimes the other two expell the primary molars, sometimes (which is more frequent) they arise at their side and increase the total number. The sites in which the teeth of the second order first develop are as follows: the most distal of the "cheek teeth" (genuini) are at the extremities of the upper jaw; the position of the molars is immediately under the root of that molar, which in the generation of the foetus follows first after the canine, this is sometimes expelled by a new one (as has been said) but sometimes not, but between it and the nearest canine the new one takes its position. Furthermore, the site of the canines is under the most distal root of the oldest canine of either side, which, since it is very high in the face, almost touches the lower border of the eve and that foramen through which the nerve of the third pair [infraorbital branch of the fifth] emerges to that part of the face. In addition, of those incisors which are on one side (for there are two right and two left), the one, which is external, is between the canine and the overlying incisor, the other, between the latter and that incisor which is similar and obtains the internal position. Afterward when the bone has been destroyed, all these teeth erupt into the open and arise when those which are first projected are extruded or fall out. I have observed the following to be the manner of their generation. The bone is hollowed out (so I believe) by a living faculty through the action of the spirit⁹ and at the same time a membranous follicle arises, which possesses two apices; one behind, to which a nervule, a little artery and a venule are attached, the other in front, from which a kind of nerve-like tail [the dental lamina] is suspended which passes all the way to the gums through a very narrow foramen of the bone to the side of that tooth which the new tooth is going to succeed.

⁹"Spirit" according to the humoral doctrine, here means the so-called generative faculty.

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A sort of white and tenacious material congeals in this follicle and at length the tooth itself becomes osseous but only in the outer part, the deeper portion consisting of the said substance. This also occurs in those teeth which are generated in the uterus. Moreover, each tooth erupts through that foramen, now expanded, through which formerly when very narrow, the tail of the follicle [dental lamina] mentioned by me, was transmitted. Eventually the follicle is broken through and the tooth stands forth naked and hard and, in the course of time, it is perfected in the lower part. Through much sweat, a long period of time and the application of all diligence I have observed these things to be true, nor do I doubt that if you are willing to undergo this labor with our CAPREDONUS,¹⁰ you will confirm this account.

¹⁰CAPREDONUS, a fellow-countryman and personal friend of FALLOPPIUS.

EFFECT OF ESTRONE ON TOOTH BUDS AND BONES IN GROWING DOGS¹

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It has been shown by many authors that the administration of the female sex hormone stimulates the growth and keritanization of the epithelium particularly of the gingiva and vaginal mucosa. This well established fact has been successfully evaluated by Richman and Abarbanel,² and other workers in the treatment of degenerative changes of the epithelium of these tissues.

The effect of prolonged administration of estrogenic substances on the bones of various species of animals has been studied also, but no uniformity of opinion as to the changes exists. It is believed that various animals react differently. The age of the animals, the dose and the duration of administration plays an important role. Mice, rats, guinea pigs, sparrows, pigeons and ducks have been used (Wentworth, Smith and Gardner, Elly and Phillips, Landauer, Pfeiffer, Gardner and Show, Silberberg and Silberberg, Day and Follis^{3, 4, 5, 6, 7}). Some of these authors observed a retardation of the

¹Aided by a grant from the William John Gies Fund of the American College of Dentists.

²Richman, M. J. and Abarbanel, A. R.: Effect of estradiol and diethylstilbestrol upon the atrophic human buccal mucosa with a preliminary report on the use of estrogens in the management of senile gingivitis. J. Clin. Endocrin. 1943, 3, 224-226.

³Wentworth, J. H., Smith, P. K., and Gardner, W. U.: Composition of bones of mice receiving estrogens and androgens. Endocrinology, 1940, 26, 61-67.

⁴Elly, I. O. and Phillips, R. L.: Effect of estradiol benzoate (estrogen) on skeletal development of immature rats. Endocrinology, 1940, 27, 661-663.

⁵Landauer, W., Pfeiffer, C. A., Gardner, W. U., and Shaw, I. C.: Effects in bloodserum and skeletal changes in two breeds of ducks receiving estrogens. Endocrinology, 1941, 28, 454-464.

⁶Silberberg, M. and Silberberg, R.: Further investigations concerning the influence of estrogen on skeletal tissues. Am. J. Anat. 1941, 69, 295-331.

⁷Day, H. G., and Follis, R. H., Jr.: Skeletal changes in rats receiving estradiol benzoate as indicated by histological studies and determinations of bone ash, serum-calcium and phosphotase. Endocrinology, 1941, 28, 83-93.

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length growth of the long bones, but on the other hand, an increase in density at the growing ends of the bones was found whereby the bone marrow appeared encroached upon by newly formed bone trabeculae. Others were unable to prove any changes in the bones. Silberberg and Silberberg⁶ showed on mice, rats, and guinea pigs, that an excessive amount of bone appears also in the diaphysis but becomes resorbed with prolonged administration of estrogen. They hold that this reversal may be "due to an adaptation of the organism to the hormone or to a change in the effect of estrogen in the ageing animal." Recently, Landauer and Zondek⁸ described the bone changes in estrogen treated cocks and drakes, and believe that an increased vascularization of the marrow with removal of bone salts (halisteresis) is followed by fibrous transformation of the marrow which in turn finally leads to hyperossification. These authors observed that these two species of birds responded differently to the administration of estradiol benzoate.

On dogs, Tislowitz⁹ determined the maximum of the daily and total dose of estradiol benzoate, while Sutro and Pomerantz,¹⁰ were the first to study the results of prolonged administration of estradiol benzoate on bones of young mongrel dogs. In contrast to the findings in the bones of other animals, Sutro and Pomerantz did not note any osteosclerosis in the metaphyseal or endosteal regions of the long bones of dogs but did observe an inhibition of the skeletal growth. They expressed the idea that "the absence of osteosclerosis in dogs suggests that other factors besides the inhibition of growth may be responsible for the excess production of bone in certain animals, after the administration of estrogen." They did not discover any changes in the public symphysis, but described in a later study a striking effect of estrogen on the symphysis publis of castrated male guinea pigs. No attention has been paid in all these

⁸Landauer, W., and Zondek, W.: Observations on the structure of bone in estrogen treated cocks and drakes. A. J. Path. 1944, 20, 179-209.

⁹Tislowitz, R.: Toxic action of high doses of estradiol benzoate for dogs. Acta. brev. Neerland. 1938, 8, 183-186.

¹⁰Sutro, Ch. J., and Pomerantz, L.: Changes in osseous tissues of young dogs after prolonged administration of estradiol benzoate. Arch. Path. 1942, 33, 305-311.

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experiments to the effect upon the teeth and their surrounding structures.

The questions that the present paper attempts to answer, relative to the administration of estrone to puppies are:

- 1. Is there a hyperestrone effect on the tooth buds?
- 2. Are the jaws and bones affected?
- 3. Is the dentition influenced?

METHOD OF EXPERIMENTS

Six puppies, eight weeks of age of the same litter were used in the experiments. Three of them were males, the others, females. One male and one female served as controls. The puppies, weighing between 1672 grams and 2069 grams at the beginning of the experiments, received intramuscular injections of 210,000 to 340,-000 I. U. Estrone in sesame oil, distributed over a period of nine to twenty-one weeks (Table 1). The daily diet consisted of Purina Chow Cubes, milk, and water. At autopsy the following bones and glands were removed for microscopic examination: Mandible, maxilla, left hind leg, right front leg, calvarium, ribs, pubic symphysis, testis, prostate, ovary, hypophysis, thyroid, parathyroid, thymus, pancreas, and adrenal.

X-Ray pictures taken after the death of the estrone puppies confirmed the clinical observation of shortening of the snouts (Fig. 1) and the long bones. While the epiphyseal lines of the lower end of the femur and the upper end of the tibia of the dogs Nos. 4, 5, and 6 appeared denser, better calcified and narrow, the epiphyseal lines of the same bones of dog No. 3 were wider. The bones failed to show any clearly visible changes in the diaphyses. However, there were areas of increased density of the bone between the roots of the erupting buds of the permanent teeth. (Fig. 1). These restricted ostersclerotic areas were present in the jaws of all estrone puppies. There was no noticeable difference in the roentgenograms between the hard tissues of the tooth buds of the experimental and control animals.

MICROSCOPIC OBSERVATIONS

Tooth buds.-While no difference could be found between the enamel, dentin, and pulp, of the estrone and the control puppies,

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the reduced enamel epithelium and the dental sac tissue of the experimental animals did show changes. The outer layer and the stratum intermedium of the united epithelium had proliferated therefore appearing wider and denser than in the normal puppies. Unusually long papillary projections of these cuboidal cells extended into the dental sac. Numerous congested capillaries of the dental sac reached between these accentuated finger-like extensions. The structure of the dental sac consisted of a rather loose tissue compared with the circular dense fibrous tissue of the control animal. The vascularity was increased and hemorrhages were found close to the surrounding bone trabeculae (Figs. 2 and 3).

Jaw.—As a whole, the structure of the bone trabeculae was found to be unchanged. The bone marrow showed a moderate hyperemia which became distinct in the area between the developing roots of the tooth buds. It was only there that the marrow contained extremely wide vessels occasionally occupying almost the whole bone marrow space. The perivascular tissue consisted of loose fibrous tissue that had undergone degenerative changes here and there.

These interradicular areas were occupied by a sclerotic, dense bone, the trabeculae of which were composed of fairly well but not uniformly calcified young bone with numerous large osteocytes distributed irregularly (Figs. 4 and 5).

Diaphysis of Long Bones.—In few regions, close to the ends of the long bones a moderate hyperemia of the marrow was observed. It was only here that the marrow appeared fibrous with occasional degenerative changes and was encroached upon by a somewhat denser endosteal bone deposition. No further differences between the experimental and the control animals were noticed.

Epiphyseal Line.—The microscopic features of the epiphyseal lines were in accord with the narrowed and widened epiphyseal lines in the roentgenograms. However, the uniformity of the involvement was missing as only the epiphyseal plates of the lower femur and upper tibia end showed changes. These areas were narrow and more calcified than in the control animals. It was only in the puppy No. 3 which received estrone for sixty-three days that the epiphyseal line was found to be wider than in the control dog No. 2. There was

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no evidence of any degenerative alteration of the cartilage cells or of changes of the intercellular matrix. The epiphyseal lines were regular. The costochondral junctions of the treated animals did not show any definite differences from the normal. No changes were noticed in the structure of the symphyses of the female and male puppies (Figs. 6 and 7).

COMMENT

The intramuscular administration of an oily solution of estrone to puppies for sixty-three and one hundred forty-seven days respectively did not produce conclusive changes on the skeleton, that could be compared with those very remarkable alterations observed by various authors on the bones of rats, mice, guinea pigs and birds.

In accord with the absence of a definite effect on the bones the dentin and cementum of the erupting buds of the permanent teeth remained unaltered while the proliferation of the enamel epithelium of these tooth buds corresponded very well with the well known changes in the gingival epithelium following prolonged estrone administration (Ziskin¹¹). No conclusions could be drawn as to the effect of this thickening on the further eruption of the tooth buds.

Only the spaces between the roots of the erupting teeth in the mandible and few areas of the long bones close to the epiphyseal lines of the lower femur and upper tibia presented evidence of a somewhat denser bone formation around hyperemic bone marrow. The hyperemia led to fibrous transformation with consecutive degenerative changes. An excessive bone formation in these restricted areas was the response to the increased vascularization. Landauer and Zondek placed particular emphasis on the correlation between osteosclerosis and vascularization and stressed the accentuated vascular effect of estrogen treatment in the ear of rabbits, in the mammalian uterus or in the finger of men.

The author being fully aware that he was dealing in the experi-

¹¹Ziskin, D. W. et al.: Interrelation of large parenteral doses of estrogen and vitamin A and their effect on the oral mucosa. Am. J. Orthodontics and Oral Surg., 1943, 29, 163-177.

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ments with growing bones and that the endosteal hyperossification was restricted to few and small areas, admits that the hyperemic condition could be explained differently. However, the degenerative changes in this transformed bone marrow and the resemblance with the changes described by various authors may allow the above conclusion.

The cartilage plate of the epiphyses did not show the very remarkable degenerative changes reported by Silberberg-Silberberg in immature guinea pigs following estrogen treatment. These authors considered these processes as "premature ageing of cartilage."

		I ADLL I				
Dog No.	Sex	Age at beginning of experi- ment in days	Weight at begin- ning of ex- periment in grams	Duration of experi- ment in days	Total amount of I. U. Estrone in Sesame oil	Weight at death in grams
I	F	56	1871	147	Control	9300
2	Μ	56	1701	63	Control	7270
3	Μ	56	1672	63	210,000	8180
4	F	56	1672	147	340,000	8000
5	Μ	56	2069	147	340,000	8615
6	м	56	1927	147	340,000	10905

TABLE I

SUMMARY

Observations on the tooth buds and the skeleton of puppies which had received intramuscular injections of estrone over a period of two to five months, showed a proliferation of the united enamel epithelium and a multiplication of the epithelium of the gingiva associated with keratinization but failed to reveal the very distinct and intensive changes in the bone and cartilage as seen in other experimental animals. Sporadic foci of osteosclerotic endosteal bone were found in the mandible, in the lower end of the femur and the upper end of the tibia fairly close to the epiphyseal line. They consisted of irregularly arranged but well calcified young trabeculae encroaching upon hyperemic, fibrous, and occasionally degenerated bone marrow. Whether these localized areas of hyperossification around fibrous bone marrow were due to the growth of the bones or the estrone remains to be proved.



FIG. I—ROENTGENOGRAMS SHOWING THE MANDIBLE OF FEMALE CONTROL DOG NO. 2 AND THE SMALLER MANDIBLE OF FEMALE EXPERIMENTAL DOG NO. 4.



Fig. 2—Area of a tooth bud of a control dog. Empty space due to dissolution of the enamel covered by united epithelium and surrounded by fibrous tissue of the dental sac.

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Fig. 3—Area of a tooth bud of an experimental dog corresponding with Fig. 2. Note the proliferated united epithelium, the vascularity and the loose fibrous tissue of the dental sac.



Fig. 4—Spongy bone from an area between the roots of an erupting tooth of a control dog.

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Fig. 5—Hyperossification in an experimental dog in an area corresponding to Fig. 4.



FIG. 6-EPIPHYSEAL CARTILAGE PLATE OF THE LOWER FEMUR END OF A CONTROL DOG.

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Fig. 7—Epiphyseal cartilage plate of the lower femur of an experimental dog showing highly calcified cartilage. The adjacent bone trabeculae of the metaphysis are slender.

THE JOURNAL FORUM

THE PROBLEM: DENTAL SCHOOL LIBRARIES AS TEACHING AGENCIES. Conducted by HARLAN H. HORNER¹

Chicago

As detached and independent dental schools disappear and as dental education comes more completely under the guidance and direction of universities, the dental school library becomes more essential as an agency of teaching. Colleges and universities generally, as well as regional and national accrediting associations, regard the library as the heart of a teaching institution. The Council on Dental Education employs these words in its discussion of its requirements for a satisfactory library:

"The Council regards adequate library facilities as essential in any program of dental education. The enlarging content of the curriculum, the encouragement of independent study and the demands of research create a continuous need for the accumulation and intelligent use of the printed resources of dentistry and its related sciences. The library resources of a dental school should be broad enough to meet the teaching and research needs of the institution. The dental library, whether established separately or as a section of a combined library, should be clearly defined as a dental collection and should be well housed, conveniently located, and open for the use of students and faculty at all reasonable hours. It should be adequately sustained, both for operation and for the purchase of additions. The Council will take into account the relationship which prevails between the library and the teaching and research activities of a dental school, and will expect to find the library, without compulsion, indispensable to both students and faculty and one of the principal agencies for the promotion of live instruction."

In appraising the libraries of the dental schools of the United States on a comparative basis in its survey, the Council considered the staff, the atmosphere and evident effectiveness of the library, the physical accommodations, the collections of books, pamphlets and periodicals, the annual expenditures and the use as shown by the average home loans per student in an academic year.

The greatest emphasis was put upon use in the determination of comparative ratings. The majority of the schools were able to present definite and authentic records. Where actual records were not available, careful estimates were made. The average home loans per student varied in thirtyeight libraries from 101 to 1.4. It is thus seen that wide divergence still exists in the degree to which the dental school libraries are employed as a vital part of the teaching process. I have asked three librarians who preside

¹Secretary, Council on Dental Education, American Dental Association.

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over excellent libraries to discuss the means they employ to interest both teachers and students in the use of the library. The contribution from Dr. Leake is appropos and is appreciated. My own conviction is that a dental school library becomes an indispensable agency of teaching, after all the art and efficiency of the librarian are exerted, only so far as the faculty make it so.

DISCUSSION: DENTAL SCHOOL LIBRARIES AS TEACHING AGENCIES.

MADELENE MARSHALL

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It is an occasion for great rejoicing when a dental journal publishes a forum on *Dental Libraries as Teaching Agencies*, for it gives the dental world the long awaited proper perspective of the educational and cultural influence of well organized dental libraries upon the dental world.

A few years ago the head of an institution which housed an undeveloped dental library made the arrogant remark that his students and faculty members were too busy doing things to find time to read the dental literature. A startling statement indeed from an alleged educator who should realize the worth of constant search of the literature if only to ascertain whether proposed research projects are original! It is a generally accepted fact that modern research would be retarded appreciably and would be much more costly without recourse to the reports of the trials and errors of our predecessors, as found in scientific literature.

The chief part that the librarian plays in educating her dental students is in the suggestion of sources of correlated knowledge such as medical and dental indexes both English and foreign, year books, dictionaries, bibliographies, abstract journals, and card catalogs. For those engaged in writing theses and articles for publication, style manuals, statistical methods, and examples of fine theses and other writings are added. Books listing resources of other libraries, such as the Union List of Serials and Special Library Resources are utilized profitably. A system of interlibrary loan is indispensable.

Humanizing the library is a new trend in library procedure. By this method we ascertain exactly what the patron seeks before we turn him loose among the library tools. We are not robots but human beings with an accumulation of information on how to use the library and the literature of one's profession.

In order to discuss dental problems intelligently and to assist with the bibliographies in the many special fields of dentistry the librarian must keep abreast of the times not only in dental literature but in the ever broadening

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scope of dental activity and study. In addition to the routine scanning of the current literature, it is beneficial and interesting to attend seminars conducted by faculty and graduate classes and, when possible, the scientific sessions of the International Association of Dental Research. The need for exchange of ideas on library methods and administration is obvious, and with this in mind, a dental librarian should enjoy memberships in the American Library Association, the Special Libraries Association and the Medical Library Association.

Lectures by the librarian on the use of the library and its reference tools should be given to freshmen, graduate students, hygienists and student help. In these lectures students are stimulated by the prospect that they may sometime in the future make specific use of their knowledge of the literature of dentistry. They may be called upon to represent the dental profession in public gatherings, to give popular talks on dentistry to groups of children, to present the vocational side of dentistry to high school students, to address the parent-teachers associations, to broadcast on the radio on dental subjects, to give dental papers before medical groups, to lecture to nurses on oral health, to present papers at dental society meetings, to write articles for dental journals, and to edit dental bulletins and journals.

Anticipation of the above mentioned activities proves an added inspiration to the dental student to collect books for his own private library. The Dental hygienist is taught by the librarian to organize the dental literature which may accumulate in her office or that of her employer. To complement the dentists' libraries, duplicate material is kept available in the school library for extension service to dentists, as well as for interloan to dental institutions and for duplicate exchange.

Augmented by gifts from the duplicate collection in the dental library several Army and Navy dental corps libraries have been established during the war for the use of dentists in service, and especially for those called upon to write dental articles for publication.

The university library with which the writer is associated can attribute much of its increase in use in the past 20 years to the work of the professor of dental history and literature. In this department the student in his *sophomore* year is obliged to write a biography of some dentist who has made outstanding contributions both to dentistry and to dental literature. This paper covers his writings, the opinions of his contemporaries, work in the same field by other dentists, etc. Each *junior* writes up 25 case histories found in the dental literature which he incorporates into his junior theme. The *seniors* hold seminars, each two boys doing a study in a special field, one as an essayist the other as a discusser. Copies of the professor's instruc-

THE JOURNAL FORUM

tions for these papers are housed in the library together with the lists of histories useful to dental students and the lists of bibliographical aids. One copy of each of the histories suggested is shelved near the indexes to dental periodical literature.

The theses submitted for partial fulfillment of the degree of Master of Science in Dentistry are on display for use of graduate, postgraduate and undergraduate students. The heads of the departments teaching graduate and postgraduate courses are in almost daily contact with the library. Assigned reading lists are posted on the library bulletin boards for the courses in dental economics, pedodontia, orthodontia, bacteriology and any other courses in which the student needs special guidance for his reading program.

The true purpose of this library is to give effective library service to dental students and faculty members, but because of its reputation we are called upon to disseminate dental information into many channels of dental education. The Army, the Navy, the U. S. Department of Health, public libraries with dental collections, other dental institutions and dentists all over the country look to us for assistance. Occasionally a student from another department of a university selects a subject in the field of dentistry for his thesis, in which event the dental librarian guides his search for background material.

From the above facts one may conclude that dentistry is crying for education, liberal education which emanates from more than mere text books. It is especially evident that the dental library exerts wide influence upon the dental school and the dental world, and that shrewd observers may study with profit the impact of the library upon the mental enrichment of the dental student.

THE MEANS EMPLOYED TO INTEREST TEACHERS AND STUDENTS IN THE USE OF THE DENTAL LIBRARY

HILDA RANKIN

Librarian, School of Dentistry, University of Michigan

"The library, if it is really functioning in the largest way in the life of an institution, is not a detached part. It is an integral part of the institution and it cannot serve in any other way."¹ This statement by Dr. Works is particularly true in a dental school library. The clinical and technical curriculum makes such heavy demands on the time of the students that without

¹Works, G.A. The library of the dental school. American Association of Dental Schools. Proceedings, 1933, p. 243.

HILDA RANKIN

an interested and cooperative faculty, the librarian cannot interest the students in the library. The greatest assistance rendered by the faculty comes when its members recognize the function of the library as a stimulus to study and research and as an aid to teaching.

At the University of Michigan, the School of Dentistry is a part of the State University situated in the midst of the campus buildings (of the other schools) in a town of approximately 40,000 people. The Dental Library is under the supervision of the Director of University Libraries and this form of administration results in the maintenance of a close connection between the General Library and the various specialized campus libraries. The co-operation of the librarians, telephone connections, and a campus messenger service, which provides for interlibrary exchanges, make available to the faculty and students, in a very real sense, the resources of a collection of over 1,242,665 books, all of which are classified by the Library of Congress system.

There are many desirable results from such an arrangement. Duplication of books and magazines can be kept at a minimum, leaving more money for specialized works: the General Library maintains a department for the reproduction of printed material both by photostat and microfilm, making possible the addition of articles or chapters from books in allied subjects at moderate expense. Interlibrary loans with other universities are made through the Reference Department of the General Library, by which books, magazines, microfilms, and photostats may be obtained from libraries throughout the United States and Canada. Such services are particularly valuable to graduate and postgraduate students, and avoid delay in the assembly of material for research work by both faculty and graduate students.

Upon entrance to the university the pre-dental students are given an illustrated lecture and then taken on a tour of the General Library. Attention is called to the catalog in the General Library in which are recorded the collections of all departmental libraries, although each departmental library has a separate catalog.

Much of the scientific material needed by the students of the specialty of dentistry is found in journals. Since there are accepted forms of bibliographical reports in law and in the natural and physical sciences, but no standard form for dentistry, a committee composed of members of the faculty and the librarian compiled a syllabus entitled "Report Writing in Dentistry." The journal abbreviations follow the standard entry of the Union List of Serials, with slight modifications and the form (volume, paging, and date) is that of the Index Medicus. This syllabus is purchased

and utilized by both graduate and undergraduate students for writing reports, assigned papers, and competitive essays.

The growth of graduate work under the supervision of the Graduate School of the University, the association of public health dentistry in the School of Public Health and the School of Dentistry, and the development of coordinated postgraduate courses in which several departments participate, have resulted in a marked stimulation of interest, which did not exist heretofore among both faculty and students. Under these circumstances, the distraction caused by clinical and technical work is absent, and the main concern is with the literature of the subjects taught. It is in this sphere that the library can play an important part. As the needs of graduate and public health dentists have increased, the library has had to grow in size, in service, and in its reference collections for detailed and specialized interest, which go far outside the boundaries of the usual formal undergraduate curriculum.

The library is administered by a library committee of the faculty, and to the chairman of this committee belongs the responsibility of signing orders and cards for books and periodical subscriptions. Requests for books, and journals are given to the librarian and the faculty member requesting the book is notified when it is received. Every six months typed lists of new books are distributed to members of the faculty, current issues of journals are circulated among the faculty, and notices of articles of interest in other journals are sent to them.

Because of the increasing use of periodical literature, the library subscribes to several copies of the outstanding dental journals. Thus the current issues are always available to the students, and the use of the extra copies of the older issues reduces the wear on the bound volumes. With postgraduate teaching, it is essential that both old and new issues of journals be available for circulation. At the request of a postgraduate student, material on an assigned subject is assembled and issued to him for a period of one or two weeks. Journals not devoted primarily to dentistry and already in other libraries on the campus are on our subscription list, and are bound. Journals of nutrition, biology and medicine, diseases of children, and several on materials used in dentistry comprise this collection.

The Index Medicus, the monthly cards of Index to Dental Periodical Literature, the Index Catalog of the Surgeon General's Library and the Yearbook of Dentistry are all in the library, and are given extensive use by both graduate and under-graduate students who are given problems involving the use of these and other indexes.

IDA MARIAN ROBINSON

THE LIBRARY, AN ADJUNCT TO TEACHING IDA MARIAN ROBINSON Librarian, Baltimore College of Dental Surgery

The evolution of the library, from its early form as a mere storehouse of knowledge, through a less passive stage as a collection of books available for use, to its modern development as an active educational agency, is wellknown. As the subject of this forum suggests, the progressive dental library has its place in the general library pattern of today as an adjunct to teaching.

The Baltimore College of Dental Surgery, like various other schools, has developed and tested its library as an adjunct to teaching; that is, as an *additional* factor in the usual teaching program. The present plan of our school is to go further: to make the library an implement rather than an adjunct of teaching; an essential and integrated, rather than an extra, part of the teaching program.

To accomplish this, it is necessary to strengthen the understanding between members of the library staff and members of the faculty. The librarian must acquire knowledge of requirements, materials, and objectives of the courses taught; the faculty member must be advised not only of the services of the library, but of its problems and its sometimes inevitable limitations. For this purpose, the Baltimore College of Dental Surgery has established a Library Committee—not a group to direct or change the general administration of the library, but one to maintain a direct line of communication between library and classroom. The Library Committee considers such questions as: methods of faculty participation in book selection; provision of books for departments; arrangement between library and faculty for reserved books; complaints expressed by library staff, faculty, or students in connection with library functions; development of new methods for co-ordinating library use with classroom instruction. This committee forms a needed, constructive contact between library and teaching staff.

Guidance of students in the use of books and libraries is a teaching responsibility that has to be accepted even in professional schools. While it is deplorable that any student should reach college level without adequate knowledge of library fundamentals, we have to face that situation and try to remedy it. If it is the fault of the student, rather than of the pre-professional school system (an always debatable question), then our task is the more difficult, for we must make the student feel the need, the desirability, and the pleasure of being able to use the library with ease.

In giving library instruction to students, we have found that the combined efforts of librarian and teacher seem most effective. Our experience suggests, also, that, after the course is worked out by teacher and librarian together, it is more productive when taught by a regular member of the teaching staff. Students accept such an arrangement as more normal, more serious, more essential, less of an education frill and time-waster than a special series of lectures by the librarian. In the Baltimore College, the Professor of Dental Literature (a position almost unique among dental schools) is the natural choice for teaching the use of the library and co-ordinating this instruction with subject courses.

The procedure is not complex. At least a month after the beginning of the term—long enough to avoid confusion with the students' initial orientation to much that is new—a course of library instruction begins, introduced by a trip to the library (some Freshmen will not have found their way there before). Upon return to the classroom, every student receives a mimeographed form explaining the use of the library. This form includes:

Rules of the library, with reasons for their necessity.

Explanation of the card catalogue, with diagrams of sample cards.

Arrangement of the stacks.

Directions for the use of specified reference works: indexes, encyclopedias, directories, biographical dictionaries, dental biographies, dental histories, dental periodicals.

Anyone who knows students realizes that it is not enough to issue pages of explanation. Distribution of the forms is followed by several sessions of detailed discussion and questioning by the instructor. Even this instruction is not enough—merely abstract knowledge of library use. Without practical application, it will not be fully comprehended or remembered. So the next step is a library problem (another mimeographed sheet), to be done within a specified period. This problem is so designed, along lines connected with dental literature, as to force the student to experience what he has been learning in theory, and to test the results. After the problems are turned in, they are discussed at length in class for further clarity and emphasis.

This course of instruction for the Freshman is the basis for proficiency in the directed supplemental reading required in other courses of his first year. It also leads, by natural progression, to special training given in the Sophomore year, with a library playing an essential role. To Sophomores is given a course "contributing to the training of students for effective participation in extra-practice activities in the profession." This course requires research in the library for a paper, usually on some phase of dental history or dental art.

Because the sciences, dentistry among them, have come to realize more and more the importance of their current literature, the Sophomore course in-

IDA MARIAN ROBINSON

cludes, also, assigned periodical articles for students to summarize and present in ten-minute talks; preparation of articles for oral presentation to a lay audience; and instruction in writing abstracts of periodical articles. In all this, the library of the Baltimore College aids instruction: first, by having "one of the most complete files of dental journals in the country" (a statement by one of our friendly rivals); and second, by subscribing not only to all significant dental journals, but to many other periodicals in allied fields. The library makes available these publications and the general course of instruction leads the student to their use.

Instruction dependent on the use of the library continues throughout the four years, culminating in the Senior paper on dental history and the thesis required for graduation. Without the participation of the library, all such training would be immeasurably more difficult.

It is in connection with special assignments, particularly, that the library staff does its part as an active educational instrument. Despite the proficiency that students may gain in the use of the library, they still need professional assistance in advanced projects, and the friendly and willing cooperation of members of the library staff, their constant efforts to help the student help himself—these are an important and commendable form of teaching.

Besides the active course of instruction by both the teaching and the library staff, there are also more passive teaching devices employed in the library. Subject exhibits of books and pictures are provided and changed often. A special rack in a prominent place displays selected new books. On the bulletin board appears a monthly list of books catalogued; copies of this list are available to students, as well as being sent to faculty members. Everything possible is done to supply visual aids to make the learning process easier.

A recent innovation here, which may be classed as library instruction to students, is the change from closed to open stacks. This we tried at first hesitantly, experimentally, but now continue wholeheartedly. It was enlightening to hear comments—more than comments, exclamations of surprise and pleasure—from the students when they were first permitted in the stacks. However well one understands a card catalogue, it is not at all the same to finger through a group of cards as to see the books themselves on the shelves and to pull them out for eager examination. We find that students who would never study the subject cards of the catalogue will investigate with interest the subject groups of books in the stacks. This is a form of self-teaching that the library now makes possible. I hear the inevitable question about a certain amount of disorder and displacement of books that must result from open stacks. Yes, that is unavoidable, but well worth the added labor when one sees the student reaction to accessible book shelves. We may think of teaching as directed primarily to students; that is, undergraduates. But study and learning do not stop with graduation, and the library is prepared to extend its teaching facilities to members of the faculty and of the profession. This service is given in such ways as arranging interlibrary loans, and purchasing microfilm copies of otherwise unavailable material which the faculty may want for research or teaching. The library has also developed a system of procuring reprints of significant dental articles, for distribution, by appropriate subject, through the departments of the school. These reprints the faculty find convenient for their own use or for easy, onthe-spot reference to students. Certain books, supplied to the departments through the library, are utilized in the same way, as an aid in the teaching program.

The library's influence as a teaching implement touches not only students and teachers within the school, but reaches to outside members of the profession as well. The Maryland State Dental Association, which endowed the Grieves Library Foundation of the Baltimore College, maintains a committee to keep in touch with members and encourage their use of the dental library. It is not unusual for the library to assemble and supply information for dentists outside the school. This extension of the library's services is only a broader phase of its teaching activity.

THE LIBRARY, AN ADJUNCT TO TEACHING

CHAUNCEY D. LEAKE, PH.D.

Vice-President, University of Texas and Dean of the Medical School Galveston, Texas

Of the making of books there is no end, and of the reading of them also there will be no end. Books contain the accumulative knowledge, ideas, hopes and fears of all the past, since man was able to give them expression. They thus constitute the easiest and quickest way with which to become acquainted with the accumulated knowledge that man has acquired throughout his ages of experience.

A real educational institution is built around its library. The library occupies usually the central place in the great universities of the world, not only physically but intellectually. It serves all departments; it serves all students; it serves all humanity. It offers the greatest opportunities for learning of any part of the university, and its opportunities are of the best sort because they are strictly on an individual basis. In order to get the knowledge from a book, it must be read by the individual.

Unfortunately, many penny-pinching educational institutions, attracted

CHAUNCEY D. LEAKE

by the glittering styles of the moment in research or new-fangled teaching ideas, tend to neglect the library. When budgets are to be trimmed, it is usually the library which suffers first. It is all too often inadequately housed, poorly lighted, unsatisfactorily staffed, and meanly maintained. Often the "practically minded" business officer of a small educational institution will scoff at the library as being too much of a "theoretical matter."

Thus it happens that adequate libraries are satisfactorily maintained only in the best American medical and dental schools. In the unfortunate majority of such institutions the library is usually cruelly and bigotedly neglected.

In health education there is so much of detail to be learned, that central repositories for the collection of all available knowledge is necessary. Such is the function of the medical and dental school library. If the library is an attractively arranged place, with adequate lighting and service, with books readily accessible, and with some appreciation of the non-technical aspects of medicine and dentistry, it will often be surprising how quickly the library becomes the central place in the school for intellectual work and discussion.

Books are made to be used and read. Too often librarians guard them jealously and in their fear of losing an occasional item, they take extraordinary precautions to prevent suitable circulation and use. Professional libraries such as those serving students in medical and dental schools should be open shelf libraries, with books attractively and easily arranged, so that they may be readily found and consulted, without even attempting to look in a catalogue. The student using a professional library gets his ideas from examining the books directly. Often he doesn't know exactly what he's looking for until he sees a book with a title that attracts his attention.

Medical and dental students are wisely advised to begin to learn to use the school library the first week that they enter school. The wise librarian will encourage them, explain the way in which the books are arranged, discuss the cataloguing system, and encourage the students to use the books in every possible way. The students themselves can help keep the library open at night, and it is surprising how often students begin to give donations to the library. The library thus can become the most essential feature in the selftraining of the medical and dental student, and that is the most important sort of training for such students.

AMERICAN COLLEGE OF DENTISTS

PROCEEDINGS OF THE MEETING OF REGENTS AND SECTION REPRE-SENTATIVES, CHICAGO, ILL., OCTOBER 18, 1944.

Reports of Committees

(Concluded from the December issue, 1944, p. 355)

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II. DENTAL EDUCATION WILLARD C. FLEMING, D.D.S., San Francisco, Calif., Chairman¹

For the past two years, this Committee has submitted reports, part of which represented original investigations by the Committee. These reports included recommendations to the College and in several cases suggested reference to the Dentistry in Action Committee.

Some of these recommendations pertained to the following:

(1) Greater stimulation of interest in dentistry of qualified young people.

(2) Retirement provisions for dental teachers.

(3) Scarcity of editorial material on dental education in publications available to the profession.

(4) Stimulation of dental teachers to present their problems to the profession.

So far as one can observe, these reports have been received and published in the *Journal* and there the matter stands.

The duties of committees such as ours are understood to be those of obtaining information, opinions and advice, correlating them and submitting recommendations to the College.

¹The other members of this committee are: C. W. Freeman, Harry Lyons, J. T. O'Rourke and G. D. Timmons.

WILLARD C. FLEMING

The publication of these reports does constitute a contribution and may even justify the efforts of the committees. However, a more aggressive program should stimulate action where it would do the most good and would certainly encourage committees to believe their efforts were not wasted.

The above remarks are occasioned by the experience of this committee during the past year. It so happens that all of the members of this group are in the field of dental education, a field that has been particularly burdened with problems related to the war. Most of the members have expressed doubt concerning the worth of their activities on this committee particularly when compared with their efforts in other activities where results of their work is more readily observed.

With these thoughts in mind the committee recommends that the College give some thought to the idea of reviving the activity of the "Dentistry in Action Committee" or another program to actively follow up the recommendations of its various committees.

A letter was addressed to the War Department requesting information relating to the findings of the War Department in the Army General Classification Tests and dental students in the Army Specialized Training Program. We were informed these findings would be released in due time.

An addendum to this report is a list of subjects and activities considered by this committee as possible fields for investigation. This is forwarded in the hope that it will be of some value to the next committee.

ADDENDUM

SUBJECTS PROPOSED FOR CONSIDERATION BY COMMITTEE ON DENTAL EDUCATION

Selection of Dental Students—Findings of the Army General Classification Test as it relates to dental students now in College and inducted into the A.S.T.P. It would be interesting to know what the experience of the schools is under the present methods of selection. Do they plan to continue a program of "selection" after the war, etc.? What technics can interviewers adopt to determine a student's "capacity" to develop as a professional man. Aptitude tests, etc.?

Continuation Studies-Refresher courses, post-graduate and graduate studies.

What are the schools doing now? What do they plan? What are the trends? Internships, externships?

Methods of Teaching—How important is "method" in a dental school? Are the schools giving any thought to teachers training? What are their plans? What do the graduates feel about present teaching methods?

Auxiliary Dental Service—Will the schools retain this after the war? What is the effect on students; faculty? How is it working? How does the program affect the cost of education; the number of applicants seeking admission?

The Requirements of the Council on Dental Education—How have these requirements effected the schools? What changes do the schools suggest? Are they effecting teaching methods, school administration? What is the effect of the Council's admission requirements?

Effect of the Army and Navy Programs in the Schools—What do the schools think of them? Which one seems to be working the best? Suggest changes. Effect financially on the students; the faculty?

Research in the Dental Schools-Amount of. How financed? Effect on teaching. Faculty time for research. Post-war plans. Facilities.

Critical Survey of the Dental Education Literature—Review of the articles appearing in the Journal of Education. Their value to the teaching group. Trends in this journal. Articles and trends in other journals relating to dental education.

State Board and School Relations—Present State trends. Suggestions for improvement. Post and present attempts along this line. What do the Boards think of the schools? What do the schools think of the Boards?

Rehabilitation of Veterans—Part played in last war. Present trends. Attitude of government. Attitude of schools. How much of a load will the schools have to carry? For how long?

Post-war Problems Facing Dental Education — Social, economic and political trends. Probable legislation. Effect of governmental control. The greater distribution of health service, etc.

Teaching Dentistry to Medical Students—Number of dental schools doing this. Length of courses, subjects. How received. Attitude of medical faculty toward such instructors; students. What do practicing physicians think should be taught; dentists?

III. PREVENTIVE SERVICE M. M. BETTMAN, D.D.S., Portland, Ore., Chairman²

Your committee has given much thought to the subject referred

²The other members of this committee are: L. A. Caderette, C. S. Foster, C. A. Sweet and W. S. Thompson.

to it and after considerable correspondence between its members begs to report as follows:

The term preventive service is to some degree misleading and might better be termed protective dental service for with our present knowledge we are unable to entirely prevent dental defects while it is possible to protect the individual against serious dental consequences. For this report we will use the designation as supplied by the College.

It is the thought of your committee that preventive dental service is broad in scope and must embrace all phases of dentistry, such as diet, orthodontics, pedondontics, radiodontia, periodontia, restorative dentistry and home care by the individual. It must commence with the obstetrician and then be followed by the pediatrician and later by the dentist carrying out all phases of service. No one service will suffice as all phases are more or less overlapping.

Our present knowledge of the subject teaches us that diet plays an important role in preventing dental diseases. The proper diet of the mother during pregnancy as well as that of the infant and child during the formative period of the teeth tends to build tooth and bone structure with high resistant properties. During the life of the individual a well balanced diet containing all the essential elements undoubtedly has a detergent effect on dental caries and periodontal disease.

Pedodontics teaches us that by seeing the child at two or two and a half years of age and on throughout childhood much can be accomplished in preventive dentistry. A plan should be worked out whereby the entire dental profession may perform preventive services as and at the time they should be performed.

By means of radiodontia we may detect incipient caries and by placing a restoration prevent the development of a larger cavity and thus prevent pulp involvement and loss of tooth.

Preventive orthodontics includes the relation of the deciduousmolars and cuspids to the forward growth of the jaws and the need of maintaining the full mesio-distal diameter of these teeth, as well as establishing a normal proximal contact point.

REPORT OF COMMITTEE ON PREVENTIVE SERVICE

Periodontia which embraces prophylaxis should be practiced by every dentist whether in general or specialized practice. A thorough periodic scaling and polishing of the teeth from early childhood throughout life would prevent to a large degree many dental diseases. This prophylactic treatment should also include teaching the patient how to properly carry out home care of the oral cavity.

By proper restorative dentistry much can be done to prevent further loss of tooth structure and additional loss of teeth. Also the periodontal tissues can be kept healthy by preventing tipping and drifting of teeth and opening of contact points.

Home care by the patient is of paramount importance for it has been demonstrated that if properly carried out many dental ills can be prevented.

The dental college curriculum must include intensive training of the student in the importance of prevention and must so saturate the student with the philosophy of prevention that he will carry it over into practice. Time must be given by the dentist to teaching his patients to appreciate preventive services so that they will be willing to pay a fee for such a service.

Patient education is of prime importance and should be carried out through local, state and national dental societies and by public health groups. Committees should be formed in the different state and local dental societies for the purpose of lay education and should be guided and assisted in their work by a committee from the National Association. This education should be carried to the laity in such a way that they will eventually demand preventive service.

Your committee is fully aware of the fact that the present national emergency has a vital effect upon our progress at the present time but feels that as the emergency draws to a close the profession should be ready to render adequate preventive services and recommends that steps be taken at this time looking towards the appointment of a committee within the parent organization which would carry out the recommendations contained herein.³

³The Board of Regents concurred in the suggestions of the committee that the various fields of service outlined should be made a part of any program of prevention.

WALTER H. WRIGHT

We further suggest that this committee be composed of a member representing each of the branches of dentistry referred to above, so that all phases of preventive service can be properly evaluated and planned. Each member of this committee to make a comprehensive report of the importance of his particular field in prevention so that a symposium can be drawn up embracing all branches of dentistry as they pertain to preventive service. This, then, to be given proper publicity by publishing the entire report in either the *Journal* of the College or the *Journal* of the American Dental Association.

Your committee further feels that it is a mistake to have committees report, only to have these reports accepted and filed as is so often done. We would suggest that some action be taken at this time looking towards the formulation of a plan for an intensive campaign of education both of the dentist and the patient.

> IV. PROSTHETIC SERVICE WALTER H. WRIGHT, D.D.S., Ph.D., Pittsburgh, Pa., Chairman⁴

The work of this committee has been confined to collaboration with the Committee on Prosthetic Dental Service of the American Dental Association through the Chairman of these committees, both of whom are members of the College and of this committee.

During the past year the A.D.A. Committee has developed a plan for the accreditation of dental laboratories which was approved by the House of Delegates on Wednesday afternoon, October 18, 1944.

This plan consists of the following features:

I. Voluntary accreditation of dental laboratories in each state by the American Dental Association and with the assistance of each constituent society.

2. The election, by the Board of Trustees, of a Dental Prosthetic Service Committee to inaugurate and supervise accreditation, and to represent and

⁴The other members of this committee are: Louis Brach, C. A. Nelson, C. G. Porter and Jack Werner.
REPORT OF COMMITTEE ON PROSTHETIC SERVICE

serve the profession in matters concerning dental laboratories and technicians under the guidance of the Board of Trustees.

3. The appointment by the Board of Trustees, of a full-time dentistsecretary to carry on the programs related to accreditation under the supervision of the Dental Prosthetic Service Committee

4. The voluntary participation of state dental societies which shall assist by providing a Dental Prosthetic Service Committee under whose jurisdiction the dental laboratories of the state may be inspected and accredited.

5. The voluntary participation of dental laboratories which shall

(a) invite inspection by the Dental Prosthetic Service Committee of the State Association,

(b) meet the requirements formulated by the Dental Prosthetic Service Committee of the American Dental Association,

(c) conform to the prevailing standards of sanitation, health, labor and safety of the State,

(d) adopt a code of ethics acceptable to the committee of the American Dental Association.

6. The inspection of cooperative dental laboraties and the approval and accreditation of those which are acceptable to the Dental Prosthetic Service Committee of the state and American Dental Association.

7. The issuance of an annual certificate of accreditation by the American Dental Association to approved laboratories. Accreditation may be discontinued and the certificate may be recovered for cause upon recommendation of the Dental Prosthetic Service Committee of the constituent society.

The details of the plan are now being elaborated by the committee and the program is expected to be in operation shortly after the midwinter session of the Board of Trustees at Chicago in February, 1945.

In conclusion, the American College of Dentists may view with satisfaction the progress and outcome of a project which was started over fourteen years ago with the appointment of the Dental Prosthetic Service Committee to study the dental laboratory and dental technician problem. Through the intervening years, the College and the profession at large have become increasingly informed of the need for profession-laboratory-technician cooperation.

Four years ago, the American Dental Association appointed a

PAUL C. KITCHIN

special Prosthetic Dental Service Committee to study this problem. The present members of the committee are Norman Denner, Wilbert Jackson, Walter Wright, John Carter, Herbert Mason, and Chairman Clarence Nelson, among whom are three members of the College. Under the leadership of that committee the plan for accreditation of dental laboratories has been developed.

The College will find satisfaction in having started and promoted a study which today is regarded as one of the most important projects to be undertaken by the American Dental Association.

V. RESEARCH

PAUL C. KITCHIN, M.S., D.D.S., Columbus, Ohio, Secretary⁵

This report covers the period of July 1, 1943, to July 1, 1944. There was only one grant-in-aid for research made by the Board of Regents for that interval. It was for \$425 to H. R. Hunt and C. A. Hoppert of East Lansing, Michigan, for a continuation of their work on "Inheritance in Rat Caries." This project has been in operation since 1937. It has been assisted by the American College of Dentists since 1940. To June 30, 1944, this assistance has amounted to \$1,955.

Your Research Fellowship Board believes that this has been money well spent. The project is a sound scientific attempt to get at the facts of heredity in relation to dental caries. As such it is necessarily a slow process, covering the careful periodic examination of thousands of individual rats for the occurrence of dental caries and the accurate compilation of breeding records. The selection and breeding of rats susceptible to dental caries is now in the 13th generation. As a result of this a quite stable condition of caries susceptibility has been reached and it has been demonstrated that inheritance is an important factor in susceptibility to rat caries. This is as important a landmark, if not more so, in the investigation of rat

⁵The other members of this committee are: A. L. Midgley, chairman, L. E. Blauch, P. J. Brekhus, J. E. Gurley, P. J. Hanzlik, A. B. Luckhardt, L. R. Main, L. M. S. Miner, L. W. Morrey, Irvine McQuarrie, Fr. A. M. Schwitalla.

REPORT OF COMMITTEE ON RESEARCH

caries as was the discovery by Hoppert, Weber and Caniff of the relation between caries and particle size in the rat diet.

In other words, the production of a caries susceptible strain of rats which can be used in rat caries investigations is a real step forward. Susceptible rats for experimental purposes have already been furnished by Hunt and Hoppert to several well-known caries investigators.

Dr. Hoppert is now investigating the effects of topical application of sodium fluoride on the teeth of rats which are susceptible to caries. This investigation furnishes a good example of how many of our ideas regarding caries will have to be *reinvestigated on caries susceptible* animals since previous work has been done on rats whose susceptibility was not known.

The securing of a caries resistant strain of rats is being accomplished, but at a necessarily slower rate. The eighth generation of caries resistant rats has been reached and the indications are that a caries immune strain of rats is a possibility with further breeding and selection.

A comprehensive publication on this project⁶ has been made in a recent issue of the *Journal of Dental Research*.

A grant of \$1200, made to Dr. W. D. Armstrong for the period July 1, 1942 to June 30, 1943, had an unused residue of \$279.89 at the close of that period. Dr. Armstrong requested a continuation of the grant to June 30, 1944. In support of this he detailed the difficulties of securing proper help at the start of the grant period. This request was granted by the Research Committee and hence this grant (No. 11) must be considered as active during the period covered by this report. The request for continuation was accompanied by a request to use the money to investigate the effect of topical applications of fluorine on the dental caries rate of 2000 children of Rochester, Minnesota. On June 30, 1944, Dr. Armstrong reported that \$134.81 of this fund had been used to secure

⁶Hunt, H. R., Hoppert, C. A., and Erwin, W. G., Inheritance of susceptibility to caries in albino rats. J. D. Res. 23: 385, 1944.

the part time services of a dental hygienist on this project. He requested at that time that the residue of \$145.08 be available for use on the project of topical application of fluorine on the teeth of Rochester school children from July 1, 1944 to June 30, 1945. This request has been granted.

The report of this committee, given last year at this time, presented a tabulated statement of grantees together with the grants to each and the time in which they were active for the four-year period, July 1, 1940 to July 1, 1944. There has been expended by the A. C. D. during that time the total sum of \$9,763.48, divided among eleven research projects.

The publications of research material resulting from these grants has been reviewed in the JOURNAL OF THE AMERICAN COLLEGE OF DENTISTS, 11: 295, 1944 (September). As there stated, there have been fifteen preliminary reports, or abstracts, in the Journal of Dental Research and eighteen full length papers which have appeared in the JOURNAL OF THE AMERICAN COLLEGE OF DENTISTS, the Journal of Dental Research, the Journal of the American Dental Association, and the Proceedings of the Society of Experimental Biology and Medicine, as a result of the financial aid to research by the American College of Dentists." The projects aided have included the dental effects of feeding fluorine in various combinations with food and drink; the inheritance of caries; the relation of salivary pantothenic acid to caries; the sterilizing of dentin in cavity preparation; the effect of guinones and penicillin on acid production by salivary bacteria; the abrasiveness of dentifrices; and the formation of and histology of enamel.

As good as this record has been, three of the older research grants have not yet resulted in published reports of any kind. In two of these cases the research has been carried out and reports submitted by the grantees to the Secretary of the Research Committee. These

⁷It is of interest to note in this connection that some large foundations consider one good publication a satisfactory return for each \$2500 of funds granted for research. The record of the American College of Dentists, to date, one publication for approximately each \$542 spent for research.

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were included in full in our report on grants Nos. 10 and 13 for February, 1944, and presumably will be published.

In the case of the grant of \$1200 to Dr. June R. Schamp of the School of Dentistry, College of Physicians and Surgeons, San Francisco, for the year 1941-42, an unfortunate series of circumstances has prevented the carrying on to a conclusion of this project. The objective was to study critically, by a new method, the potency of analgesic and other drugs when used singly and in combination. Much difficulty was encountered in securing special equipment and subjects for experimentation, due to war conditions. Once secured the equipment did not show consistent results and thus required much work which had not been foreseen in the planning of the project. To further complicate the situation, Dr. June Schamp was forced by personal domestic conditions to stop work. Her husband, Dr. Harvey Schamp, carried on for a period and then he left the employ of the College of Physicians and Surgeons of San Francisco and there was no one available to carry the project. No work has been done since August 4, 1943. The sponsor of the project, Dr. M. L. Tainter, is no longer with the College of Physicians and Surgeons. The dean of the Dental School of the College of Physicians and Surgeons, Dr. Ernest Sloman, has written the secretary of your Research Committee a letter on August 8, 1944, relative to the status of this project. The gist of its contents has been reported above. Dean Sloman has stated the attitude of his school toward the future of this project as follows:

... "The equipment as per the enclosed list, and as seen in the attached photographs (including the Electrometer) is all in our possession and will be retained intact subject to your advice.

"We at the College of Physicians and Surgeons are quite willing to underwrite, with our funds, the cost of completing this project. Whether we shall do so or not depends on whether you wish it, the attitude, reaction and enthusiasm of the ones that I will attempt to persuade to do the work and lastly when and where the imperfections of the instruments referred to above can be corrected."

The Research Committee has considered Dean Sloman's offer in

connection with Grant No. 9 and recommends that it be accepted with the understanding that Dean Sloman becomes responsible for reporting to the Research Committee on the progress of the project and all publications resulting from it. Also that Dean Sloman assumes the obligation of protecting the equity which the American College of Dentists has in the non-expendible equipment that has been purchased from Grant No. 9. A list of this equipment and photographs of its assembly is in the files of the Research Committee secretary.

Based on our experience with research grants, your Research Committee has decided to limit all future research aid recommendations to a maximum of \$500 to any one grantee in any one year. We have also drawn up a set of nine stipulations to which a grantee must agree before research funds will be made available for his use. A copy of these stipulations accompanies this report.⁸ We believe they will help to avoid some future difficulties.

The Research Committee is also aware that in the past too much (\$1,354.87) of the research grants were expended for durable equipment. Such equipment, while it remains the property of the American College of Dentists, tends to stay at the institution where it was purchased. In the absence of periodic check up and inspection, breakage, deterioration, and loss are to be expected. To minimize this condition in the future, one of the stipulations for grantees is that no non-expendible equipment will be purchased from research grants without specific permission for such a purchase. This permission will only be given in very exceptional cases. In response to his request, Secretary Brandhorst has been given a list of this equipment and the reported cost price. We undersand that he is attempting to liquidate these investments wherever possible.

ADDENDUM

RESEARCH FELLOWSHIP BOARD

Acceptance of conditions upon which all awards of grants-in-aid of research are based (Of the duplicate of this form, one should be returned to the Secretary of the Research Fellowship Board by the grantee whose signature is inscribed.)

⁸See Addendum.

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(1) The grant will be expended exclusively to promote the research project specified above, which will not be assigned to any one else without approval by the Research Fellowship Board. If for any reason it would be impossible for me personally to continue the said research, the Secretary of the Board would be promptly notified of that fact. As soon as possible thereafter the unexpended balance of the grant, made payable to the Treasurer of the American College of Dentists, with an itemized statement of the expenditures to the time of cessation of my work on the project and an indication of the status of the unfinished research, would be sent to the Secretary of the Board.

(2) I understand that all durable equipment purchased with funds in the grant becomes and remains the property of the American College of Dentists and, at the conclusion of the research for which it was obtained, will be subject to disposition by the Research Fellowship Board—including possible transfer to another grantee.

(3) I shall not use any part of the grant for the purchase of durable equipment before obtaining approval therefor from the Secretary of the Board. Promptly after an approved purchase of durable equipment, I shall forward to the Secretary a complete description of it, including maker's name and serial number or catalog number; or, if none of these is available, a photograph of the said equipment.

(4) I understand that the American College of Dentists is opposed to commercial exploitation of professional journalism. Accordingly I agree that the results of the said research will not be reported or described by me in any proprietary publication.

(5) In accordance with a requirement voted by the Regents of the American College of Dentists, I shall insert in all manuscripts presented for publication of the said research or any part of it—preliminary reports or complete papers—this routine accreditation: *This research was aided by a grant from the William John Gies Fund of the American College of Dentists.*

(6) I shall promptly indicate to the Secretary of the Research Fellowship Board the title and place of publication of each report and paper by me, descriptive of any portion of the said research; and, as of June 30, will send him a corrected list of all my related publications during the preceding twelve months.

(7) I agree to send to the Secretary of the Board twenty-five (25) reprints of each publication related to the said research, as soon as reprints become available; or two manuscript copies of it, if reprints have not been obtained.

(8) Immediately after the termination of the grant-in-aid, on June 30, I shall send to the Secretary of the Research Fellowship Board (a) a brief but compre-

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hensive report of the research accomplished; (b) an abstract, of not more than 250 words, of the results obtained; (c) a summary of the general items of expenditure; and (d) a check, payable to the Treasurer of the American College of Dentists, for any unexpended balance of the grant.

Items (c) and (d) will be obtained by me from the financial officer of the institution in which the research was conducted, and who administered the grant; and will be signed by him.

(9) I agree to respond promptly to all communications from officers of the American College of Dentists relative to the grant-in-aid and the ensuing research.

(Date) (Signature)

Address of (institution where research will be conducted)

VI. Socio-Economics

GEORGE W. WILSON, B.S., D.D.S., Milwaukee, Wis., Chairman⁹

PART I—PREFACE

The committee, again this year, found it necessary to carry on its activity by means of correspondence entirely. There were no meetings of this committee held during the year.

It has appeared for some time that one of the most troublesome socio-economic problems facing the dental profession was that of dental manpower. It has become evident that there can be no extension of dental care for the masses of our people without considering the adequacy of the vital means of providing more dental service, namely manpower.

The committee proceeded, therefore, to make a survey of this matter by the preparation and distribution of a questionnaire for itself and for a group of consultants, all of whom are Fellows of the College. While the deficiencies of this method were recognized, it did seem that some good could be accomplished by accumulating the opinions and points of view of the group, for the benefit of any who may recognize what ever value may result from the effort. A summary of the replies to the questionnaire follow:

⁹The other members of this committee are: T. E. Grant, W. H. Mork, K. C. Pruden, M. W. Prince, C. E. Rudolph, E. G. Sloman and E. W. Swanson.

REPORT OF COMMITTEE ON SOCIO-ECONOMICS

PART II

Questionnaires were mailed to a group of thirty-five Fellows of the College; a total of twenty-one replies were received, of which nineteen could be used in this report.

Summary report on questions concerning the dental hygienist:

Question 1: Will there be a shortage of dental manpower, if there is to be an expansion of dental manpower available to the people in the post-war period?

Yes, 18; No. 1; Yes, with qualifications, 2.

Some significant comments:

1. "There was a shortage prior to the war; there will undoubtedly be a distinct shortage, should any of the proposed increases in dental service be carried to fruition in post-war planning."

2. "Provided social and economic conditions are such as to effect a clamour for dental service. There were more than enough dentists to meet the demand (not need) for dental service 1932-1934."

3. "Question of shortage modified by (a) number of dentists who will be retained in service, and (b) greater output per dentist."

4. "If there is to be much expansion, dental manpower will have to be expanded."

5. "Abstracts from the negative reply indicated the belief in general that:

a. Does not subscribe to the cold figures regarding population and dental manpower.

b. From 1930-1940 there was no lack of manpower.

c. Shortage now due to 20 per cent being in service.

d. Social and economic conditions during war period, i.e. increase in funds available, and taking care of backlog from the depression. When people have less money to spend upon return to more normal economic conditions, demands will be less and manpower adequate.

Question 2 (condensed): If a shortage is experienced, how may it best be overcome:

a. By training more dentists?

b. By training more hygienists?

Yes, 16; No, 2; 1 questionable.

c. By training and licensing the hygienist to perform so-called

Yes, 18; No, 1.

simple dental operations in addition to those which she is now licensed, such as:

I. Placing restorations in deciduous teeth.

2. Placing restorations in permanent teeth up to 12, or, as some propose, up to 18 years of age.

3. Extract deciduous teeth.

4. Treat diseases of the mouth in this age group.

Yes, I; No, 16; neither "yes" nor "no", 2.

Some significant comments:

One of the three responses stated:

"This should be seriously considered, and if adopted as a step toward solving the 'manpower shortage' should be under *strict* control of the dental profession if it is to succeed. If the profession does not do something of this kind, the politicians will."

Another:

"I should not call such a person a dental hygienist. I think the term would be confusing. If adopted in this country I prefer the name dental nurse as used in New Zealand. I have had considerable correspondence, reports, and literature on this service in New Zealand and have been very favorably impressed with the project there. I don't think the dental profession here is ready to approve although I would like to see it tried out in a limited area under proper administration. Of course wherever tried the state law would have to be amended."

A third stated:

"I am not averse to proposal (c) if permitted only under the direct supervision of the profession."

d. By training and more extensive use of dental assistants?

Yes, 17; No, 2.

Summary of significant comments:

Those who favored "d" indicated the services of the assistant should not be extended in scope, but should be limited to an increase in the number of assistants and, therefore, increased production in quantity of services performed.

e. By training and more extensive use of the dental nurse, as in Canada?

Yes, 6; No, 3. Not familiar with plan, 10.

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Summary of significant comments:

One who favored the three plans, B, D, and E, did so because it will release the dentist for the work he alone can do, but not to take over the work of the dentist to any greater degree than is now legal.

Another raised the question of "how many simple dental operations are we called upon to do?", questioning the expansion of the use of the dental hygienist. It was also pointed out that the care of the deciduous teeth includes the most difficult operations we have to do.

One of the consultants commented under this item that he doubted the value of this questionnaire because, "the questions are so worded that one could spend hours qualifying his answers."

Question 3: If the hygienist is licensed to perform operations as in No. 2c, with 2 or 3 years training, could her activities be properly controlled by whom?

Yes, 2; No, 15. Qualified answers, 2.

Summary of significant comments:

One, answering yes, believed the activities of the hygienist could be controlled by state boards, and mutually by dentist and hygienist.

Another expressed his opinion as follows:

"If such a plan were to be adopted here, I would very much favor it as in New Zealand. The dental nurse would not be licensed to practice a limited dental service in private offices but limited to government employment in school under proper supervision. That I think, could be properly controlled by State Health Departments. It would be better controlled in some places than others, but private practice as at present isn't very well controlled."

One of those answering in the negative believed that the licensing of any new group to do limited work for a profession clamor for a broadening of their activity, and those who objected to licensing hygienists did so for that very reason.

Another consultant stated that, with some exceptions, there could be control by proper laws, but there would no doubt be some abuses.

Another believes control possible if the hygienist were working in a clinic under federal control.

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Finally, another states that the circumscribing of the hygienists' field has been of concern in the past and still is, even under the present laws and dentist-supervision, and broadening the field will not minimize the circumscribing influence. There is a question whether the conscientious hygienist seeks expansion in her present field of work.

Question 4: If the hygienist is to do all types of operations, and if the 2-4 plan of dental education is necessary to prepare the dentist to render a good quality of all types of service, do you believe any one less trained could be expected to maintain the present high quality of service?

Yes, 3; No, 13. No answer, 3.

Summary of significant comments:

In one reply, the reporter believed the question to be too complicated, but expressed the opinion that he opposed permitting the hygienist to do all types of dental operations.

Another who answered "yes" expressed opposition to the 2-4 plan of dental education and believed the old 3 years' course to be long enough for preparation to practice.

The opinion of another was to the effect that the hygienist would not be expected to do all types of operations, but, as now, many operations could be performed by the technician. He also believed it is a case of not what one would do, but what must be done under the circumstances.

Another stated that:

"Dental teachers for whom I have a very high respect have told me that they believe such persons could be trained to do dentistry for children in two years' time and do it as efficiently as the dental senior is trained to do it now. . . If properly supervised, I think they would maintain a higher quality of service than the present in the things they would be trained to do. Just what is meant by 'the present high quality of dental service?' Do you mean the service *taught* in the dental school or *practiced* in the average dental office where there is no supervision? If the latter, it certainly can't be qualified as high quality, especially for children."

Question 5: Would No. 2 above affect quantity of service? How? Quality of service? How?

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The great majority were of the opinion that the quantity of service would be increased, but that quality would be sub-standard. Some, however, were of the belief that the quality of service now done for children is below the standards of that done for adults, and that hygienists, especially trained for children's service, would improve the quality.

Question 6: Some state laws permit both female and male persons to be trained and licensed hygienists. Could laws or agencies or state boards regulate the activities or limit the scope of work performed, by this large group of sub-dentists?

Yes, 9; No, 8. Unanswered, 1.

Survey of significant comments:

There seemed to be a general opinion on the part of those answering "yes" that if the law were properly written it could be enforced as effectively as any other dental law, but that it would be expensive and more difficult to enforce.

One commented that if the services of the hygienists were limited to government employees under supervision and if they were not allowed to practice in private offices, the law could and would be easily enforced and the hygientists kept under control. This reporter believes there would be no need for them in private offices.

Those indicating doubt or a negative opinion feel that attempting to control the extended activities of the hygienist would create some very difficult situations and enforcement would get out of control.

Question 7: A. One of the purposes of enlarging the scope of dental service performed by the dental hygienist is to perform low price, class dentistry (the idea that anything is better than nothing). Will this produce an inferior quality of service?

B. Will this quality of service undermine the great heights to which the profession has climbed in the field of health service in the past quarter century?

A. Yes, 17; No. 2.

B. Yes, 17; No, 2.

Summary of significant comments:

One of those answering in the negative believed the results would

be quite the contrary, for the profession has failed to meet the problem of adequate child care.

Another answering "no" referred to the improvement in the quality of service in New Zealand where the use of the dental nurse for dentistry for children is approved.

Another expressed the opinion that "the profession has not climbed to great heights in the field of health service for children. He believes only a few have rendered good service, but the majority have not.

One answering "yes" points to the poor results in Germany and Great Britain where several grades of practitioner did different grades of practice. It was pointed out that the quality of service would be affected by inferior training and when that is the case a quantity of inferior service would be of little or no value.

Question 8: Do you in general favor two levels of dental training and practice, the dentist level and the sub-level?

Yes, 1; No, 17. Yes, with qualifications, 1.

Summary of comments:

In reviewing and summarizing Part I of this questionnaire, the following opinions stand out:

I. The great majority of those returning the questionnaire expressing opinion are opposed to two levels of dental training and practice, the dentist level and the sub-level.

II. Those who oppose it do so in general because they fear that:

1. The scope of the sub-level practitioner cannot be controlled.

2. That the quality of sub-level service will be inferior to that now rendered by the dentist.

3. That it would break down the present qualitative level of dental education.

III. Those who favored in general training and licensing the dental hygienist or dental nurse to perform dental service for children in addition to those for which she is now licensed, such as placing restorations in deciduous teeth; in permanent teeth up to 18 years; extracting deciduous teeth and treating oral diseases for children, were of the opinion that:

1. There is a great need for more dentistry for children.

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2. The quality of service rendered by the large majority of dentists in private practice is not of high quality, and the two year trained operator would do better work.

3. The scope of service of the sub-level dentist could be controlled if he or she were to serve in government-controlled clinics. It was held that this type of dentist should not serve in a private office but be limited to a clinic.

PART II-THE DENTAL TECHNICIAN

Question 1: A. Does the dental technician of the present day perform a valuable and necessary service to the dental profession?

B. Are his services indispensable under our present plans of service to the public?

A. Yes, 19; No, 0.

B. Yes, 14; No, 5.

Summary of significant comments:

The comments offered under A above indicated that the technician does a valuable service; that the profession has grown to depend upon him, and that his services are an adjunct to that of the dentist in saving of laboratory time, which the dentist can utilize to better advantage at the chair.

Part B of this question appears not to have been well worded. A few thought it should be deleted.

The general comment indicated that if he is indispensable, the profession has made him so. Some believed he is indispensable to those dentists who do not possess the skill to do the technical part of service themselves. One reporter was of the opinion that he has become indispensable because many dental schools do not give adequate training in laboratory procedures. Another believed that there is not enough time in the undergraduate dental course to offer adequate training so as to do a high quality of technical work. One reported he believed the theory of indispensability could be disputed, but in practice he would grant it existed.

Question 2: Is the quality of work done by the better type of commercial laboratory generally satisfactory?

Yes, 16; No, 0. Three did not answer for various reasons.

Summary of significant comments:

It appears some did not understand the intent of the author of this question. It may be stated here that none of the questions in this questionnaire were worded with the intent to suggest an answer one way or another. We are seeking honest and frank opinions in all the questions and intended to make the approach with an open mind. If we failed in some parts to do this, it was due entirely to the inability of the author to do better.

The term "better type" was used to distinguish between the high type commercial laboratory which serves with the highest quality. Then there is the low type which serves with the same principles as the advertising dentist. The service that type of laboratory renders is low in quality.

The majority of those reporting appeared to recognize that all laboratories do not render a high, satisfactory quality of service.

Question 3: A. Does the plan of the individual dentist employing a laboratory technician in the private office have advantages over the commercial laboratory?

B. If the group plans of service are attempted would it be a good plan to employ dental technicians in the group clinic laboratory?

A. Yes, 16; No, 3.

B. Yes, 19; No, 0.

Summary of significant comments:

It was generally agreed that the plan of one or a group of dentists employing one or more technicians privately or in a group clinic would be more satisfactory than the commercial laboratory. It was believed this plan personalizes the product and improves the quality because of direct supervision by the dentist.

The difficulty is that but few individual dentists can afford the overhead costs of this plan. This plan does not offer the great and important advantage of control of the services performed by the dentist.

Question 4: Could the services of the commercial laboratory technician be expanded and if so, would the profession continue to maintain the present control level?

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Yes, 2; No, 9. The others reporting were in doubt or did not understand the question.

The author of this question intended to secure opinions on the danger which faces the profession, of technicians who have been trained in service camp desiring to be licensed to practice mechanical dentistry directly upon the patient.

Summary of significant comments:

One reporter believes the services of the commercial laboratory have now been expanded until they are nearly out of the control of the dental profession. He favors the establishment of a voluntary plan of accreditation in the A.D.A. and use state and component societies to enforce the plan.

There was a vagueness about this question which seems to have confused those who were invited to reply to the questionnaire.

Question 5: If federal legislation results from the influence of pressure groups and politicians in Congress, is it likely that the following would result:

1. Licensing of veteran technicians as a patriotic gesture?

2. Requirements of training and regulations of extent of activities?

3. Supplying the public with denture service directly, omitting the middle man (dentist)?

1. Yes, 8; No, 3.

2. Yes, 8; No, 2.

3. Yes, 8, No, 5.

Doubtful, 4; no answer, 4.

This question was stated so badly that it did not stimulate the majority of the committee and consultants to express their opinions specifically.

Summary of significant comments:

The general opinion expressed was that there is no telling what politicians may do, prompted by patriotic fervor, or to gain public favor.

One expressed the opinion that "if the profession in the various states stands pat on their dental laws, I do not believe that a direct service by the laboratories to the public would be possible. A well-

organized state society, prepared to prevent passage of 'bad' laws is essential."

Question 6: A. Do you approve of the certification of dental technicians by state boards?

B. Do you approve of the licensing or accrediting of dental laboratories by state boards?

A. Yes, 5; No, 9. No answer, 3.

B. Yes, 4; No, 11. No answer, 3.

Summary of significant comments:

It was the opinion of one consultant that if technicians are licensed, their next move would be to seek permission to operate intra-orally, either through their own or others' efforts.

Another believes certification would result in a better type of technician, and thus result in better service; also that it would help to control him and eliminate infractions of the law.

The abolition of the present commercial laboratory, another consultant believed, would be desirable. It was the opinion of one member of the committee that the profession should certify the technician and not license or accredit by law.

Question 7: Should the training of technicians be undertaken by: A. Dental schools?

B. Approved and licensed technician schools?

A. Yes, 10; no, 2. No answer, 7.

B. Yes, 7; No, 5. No answer, 7.

Summary of pertinent comment:

There was an element of uncertainty in the replies of all who responded. The replies indicate that if the training were done in dental schools which are equipped to provide proper training, the industry could be better controlled. Some believed the dental school is the proper place, but at present they lack facilities. Also, there is an objection to the dental school technician because his training in a school will create a desire for a license to practice mechanical dentistry.

Opinion more strongly favored the technician school, with a set-up like a trade school.

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It was generally believed that training in a school of any kind would make it difficult to control the system of training and the product. School training appears to have several disadvantages. It is believed by several consultants that the present apprentice system of training is satisfactory.

Question 8: Should dental technicians be permitted to work on patients to the extent of:

A. Taking impressions for complete and partial dentures?

B. Fitting finished cases?

Yes, 0; No, 19.

Summary of significant comments:

There was an expected definite opposition to permitting the technician to serve in any way other than what the dental law now permits.

SUMMARY:

The general reactions among those who answered the questionnaire were:

1. That the problem of dental personnel is the most pressing one facing the profession today.

2. Some of those replying were of the belief that the answers in a questionnaire of this kind will be based upon emotion, and, therefore, will not contribute to a solution of the manpower problem. It does appear certain, however, from the nature and tenor of replies, the great majority of opinions were based on experience and without undue emotional judgment. In this light, the results obtained may be considered to have some value as a small contribution to the solution of the dental manpower problem.

3. If there is to be any considerable extension of dental health services, the manpower problem must be solved and in a way which will maintain the quality of service to all age groups.

4. The answers received indicate clearly that while production of dental service may be increased by making use of the dental hygienist, assistant and technician, it should be done as an adjunct to the profession, as they now are, and not trained to do a limited amount of dentistry as sub-level dentists. 5. The opinion of one consultant is outstanding in value. He states:

"There would seem to be two ways in which dentistry might attack the problem involved in these 'social changes.' One of these is the long view approach—to reduce the incidence of dental disease by research. The other is to increase the facilities for dental service by every means consistent with the public interest. This could be accomplished by taking steps to add to the number of dentists and at the same time augmenting its services by the use of 'subsidiary helpers,' which, in dentistry as in medicine, should be done by the profession and not for it by some outside agency."

6. There is a strong belief among a few that if we are ever to cope with the dental manpower problem, dental health services must be provided for school children on the same basis as education. At least one of those who advocate this can see no other solution. He has believed it for years and has advocated it publicly. This opinion is based not upon emotion but upon experience.

7. There was strong evidence among all reporting that the private practice must be preserved if the quality of dentistry is to be maintained.

8. There was a considerable expression of alarm over the danger of some insurance or pre-payment system being established for the low income group on a panel scheme.

9. This questionnaire report will not result in cold factual answers on the subject of manpower. It was not intended to do that. The solution to any problem does not of necessity have to be based upon cold facts alone, but partially depends upon reasoning through experience. All knowledge is based on a variety of experience.

10. There was absolutely no intention by the committee to attempt anything by their effort other than gather the points of view and frank expressions of opinion of 35 known leaders of the dental profession in the United States on the problem of dental manpower. The solution of the problem should be undertaken only by organized dentistry, not by any other group, agencies or individuals, outside or within, the profession. It must be done only after careful evalution of the several aspects of the problem by matured minds, responsible wholly to the A.D.A. and in the public interest.

THE WM. J. GIES ENDOWMENT FUND: JOURNAL OF DENTAL RESEARCH

(February 17 to October 13, 1944) ARTHUR H. MERRITT, D.D.S., New York, Chairman¹

In November, 1943, a letter was sent to every member of the American College of Dentists by the Endowment Committee soliciting contributions to the William J. Gies Endowment Fund for the Journal of Dental Research, report of which was made to the Board of Regents at its meeting in Chicago. This report included all receipts up to February 17, 1944.

In May of this year (1944) about 1000 additional letters were sent to the members of the American Dental Association who were not Fellows of the College. This list included names from most of the States of the Union.

In response to these letters, plus additional contributions from members of the College since February 17, the Chairman of the Endowment Committee has received and deposited to the account of the Fund a total of \$2,527.50 divided as follows: Seventy-one individual contributions (ranging from \$2.50 to \$125) \$1,062.50; seven dental organizations, a total of \$1,465. This latter group includes a contribution of \$1,000 from the American College of Dentists. Further contributions include three by different organizations in Wisconsin, aggregating \$290. A check for \$50 was received from the Rhode Island State Dental Society with the statement that it was hoped to make it an annual contribution. The above totals do not include contributions sent directly to the Treasurer which will appreciably increase the amount received from the above mentioned appeals.

While attending a joint meeting of the Maryland and District of Columbia sections of the American College of Dentists in June, the Chairman took occasion to call attention to the Fund, following

¹Report submitted to the meeting of Regents and Section Representatives, Chicago, Oct. 18, 1944.

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which several contributions were sent direct to the Treasurer. These, with other contributions, including those sent to the Chairman, will appear later in the Treasurer's report. The Fund is still several thousand dollars short of its goal. This, however, is not a matter for discouragement. It should be remembered that only a few years ago, a small Committee in New York interested in the success of the Journal of Dental Research and the ideals which it represented in professional journalism, set out to raise a fund of \$50,000 and that already more than four-fifths of its task has been accomplished. This is little less than miraculous. The project so auspiciously begun and so far advanced must continue to go forward. To do this, those of the College and others who have so generously supported it from the beginning, will need to make further contributions. This can be done without hardship to anyone. Less than \$10 from each would be sufficient. The Fund could also be advanced if each would write a personal letter to a few of his colleagues soliciting a contribution. The Endowment Committee needs and will welcome any help that is given.

No group in the profession has given more generously to the Fund than the members of the American College of Dentists. If anything were needed to prove the high ideals for which the College stands, it would be found in the wholehearted interest it has shown in the success of the William J. Gies Endowment Fund for the Journal of Dental Research. No better reply could be made to its critics than to point to its record in support of this Fund and to ask that it be compared with the support given it by the group represented by its would-be critics.

Especial credit should be given to the Secretary of the College and his office staff for the splendid assistance they have given in the preparation for mailing of about 4000 letters, the expense of which has been underwritten by the College. Without such assistance the Endowment Committee could hardly have succeeded in the task assigned to it. With its continued cooperation it cannot fail. A list of all contributors, addresses and amounts will be submitted with the annual report to be published in the spring of 1946.

THE WORK OF THE DENTAL TEACHER

LLOYD E. BLAUCH, Ph.D. Senior Specialist in Higher Education U. S. Office of Education Washington, D. C.

The character and progress of a profession—dentistry as well as others—depends very largely upon its teachers. Through the teachers the future practitioners have their first intimate and extensive contact with the profession. The teachers determine in large measure what these young people will learn, what professional attitudes they will develop, what ideals of service they will espouse. It seems fitting, therefore, that members of the dental profession should occasionally consider questions relating to the work of their teachers, and particularly that the members of the profession should come to understand what a good dental teacher has to do.

NATURE OF TEACHING

What is teaching? What does it mean to teach? Ask the man in the street this question and you may insult him. Teaching—anyone knows what it is, at least so he wants to reply, why ask such an unnecessary question; who has not seen teaching in these modern times, who has not been taught, who does not know what it means to teach?

There is much more to teaching than first meets the eye. The dictionary elaborates the idea of teaching with a half dozen or more definitions, such as to instruct, to explain, to impart knowledge, to direct, to guide, to train by practice. These words help to characterize the acts of teaching, but they do not constitute an adequate definition.

One of the best statements to define teaching was made by Jean J. Jacotot, a French mathematician and teacher a century ago, when he said, "To teach is to cause to learn." This very simple direct definition is of great significance, for it places the center of attention and emphasis where it belongs—on what occurs to the learner. It is

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in line with the well established principle that persons are educated through their own mental activity. Strictly speaking, no one can educate another; all he can do is to provide situations, conditions, and activities which are designed to encourage and promote learning on the part of those who desire to learn.

In line with Jacotot's definition, the observation may be made that one has not really taught unless, as a consequence, another has learned. To have gone through the forms of teaching when there has been no learning is merely to have spent energy to no good effect. In other words, where there has been no learning there has been no teaching, regardless of what may have been done by the teacher.

GENERAL FUNCTIONS OF THE TEACHER

There are many mistaken ideas about the work of the teacher. Among some dentists—many who have not taught—the idea is often advanced that a teacher is one who lectures to students or who acts as a drillmaster. The activities carried on by the teachers in dental schools, it is hinted, are not too difficult to perform; almost any dentist could do them. This very mistaken view should be corrected.

Stated briefly, the general function of the teacher is to facilitate learning by those he teaches. Knowledge is extensively published in books and periodicals, which may be purchased by individuals and borrowed from libraries by those who desire to learn. Laboratories and clinics can be equipped and made available to students. Other paraphernalia of learning can likewise be put at the service of those who want to learn. In spite of all these things, teachers are needed in order that the educational process may go forward as adequately and rapidly as possible; they are needed to facilitate learning.

The teacher facilitates learning in a number of ways. He sets definite goals for the student and plans a series of experiences through which the student may attain those goals most expeditiously. He arranges a schedule of work—a necessary thing for many who aspire to complete a curriculum within a reasonable time. From time to time the teacher guides and assists the student as he may require such aid. He instructs students, usually in groups. On oc-

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casion he evaluates the student's progress. Finally, the attainment of the teacher is a source of encouragement and inspiration to the student who aspires to the mastery of a field of knowledge or a sphere of activity and service. The teacher is, then, a planner, a manager, a personal guide and assistant, an evaluator, and a stimultor.

The teacher creates good learning situations. He constantly observes the operation and results of the learning process in his students. He diagnoses the difficulties which individual students encounter. Always his concern is that the learning process shall go on speedily and result in the desired attainment.

SOME DETAILS

A few of the detailed activities that make up much of the teacher's work should be noted by those who would understand his service. *First*, he must prepare his courses of instruction. This comprehensive planning requires thorough mastery of subject matter and understanding of how it may best be learned. A clear statement of goals to be attained by the student must be formulated, the subject matter and the student's activities must be arranged in logical order and sometimes set to the calendar. Lists of reading materials, visual aids, special apparatus and equipment, and the like must all be a part of the completed plan.

Once a course has been planned it cannot be frozen and kept on ice without disastrous consequences. Many college and university teachers find that they have to replan a course every time they teach it. New points of view and new knowledge must be incorporated. As the teacher's outlook expands he may have to reorganize his plan completely. And only the teacher who can and will do these things is worthy of being placed on a faculty to lead and direct the intellectual growth of students.

Second, the teacher has to make daily preparation. Few things that he does yield greater returns. In this daily work he renews his knowledge of the subject or topic to be taught, clears up hazy ideas, recaptures the details, and gets relationships clearly in mind. He determines the purpose of the particular activity or lesson, and devises or selects the means to accomplish the purpose. He apportions

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time to the various phases of the topic. He designs pivotal questions, problems, and exercises. If physical materials and equipment are required, he arranges for them and, as may be necessary, tries them to see that they will operate properly.

Third, the teacher instructs students, usually in groups of 25 or more. In this activity his ingenuity and resourcefulness are taxed, often to the limit. Important as are the other things a teacher does, they cannot be a substitute for the ability to conduct a classroom exercise well. The teacher may use the lecture method, group discussion methods, and, on occasion, individualized methods. He has at his disposal the laboratory, the clinic, the library, and the museum. Each of these methods and means is appropriate at certain times and quite inappropriate at other times. Through determined and continuous effort he may master the various methods and become skillful in using them. This effort he must make, for it is in the classroom that much of his influence comes to a focus.

It may be pointed out here that in his instruction the dental teacher must rely largely upon the use of language to accomplish the results at which he aims. He has to express his ideas clearly and accurately in spoken language so that they become intelligible to his students. Ability to do this is no mean achievement; it is all too rare.

Fourth, the teacher has to judge or evaluate the attainment of his students. This task is a difficult one to perform soundly and in fairness to students. Many methods and devices have been designed as means of carrying out this function, but practically all of them require personal judgments at some points, as well as much time, for their satisfactory use.

Fifth, much time of the teacher is necessarily devoted to institutional responsibilities, such as committee work, faculty meetings, conferences, reporting on his work, and assistance in the registration of students. In order that institutional policies may be developed and certain routine activities may be carried on, practically all faculty members must devote time to these matters.

Sixth, the dental teacher is called upon to advance the profession. This he can do in various ways. To carry on research in his specialty is one of the most significant to these, not that every teacher must engage in research work, but certainly it is reasonable to expect that a goodly number should do so. Writing on dental subjects is another means by which a teacher may advance his profession.

Seventh, the teacher has to grow in knowledge and wisdom. One who teaches well roams widely in the field of knowledge. His own subject is naturally extensive and is continually growing, and much of his time is spent in keeping up with these advances. Moreover, in order to do his work well he must necessarily give considerable attention to developments in related fields. Furthermore, his effectiveness as a teacher is greatly increased if he maintains contact with the world of affairs, with which his students are also concerned. The process of synthesizing and humanizing knowledge, in which he is engaged, calls for broad outlooks and for fresh interpretations of knowledge.

Quite clearly, the dental teacher who does his work well is busy doing many things. The few hours a week actually spent with students may be but a fraction of the hours he must necessarily devote to numerous other activities which make his instruction effective, promote the progress of his students and advance the service of his institution.

CONCLUSION

If this analysis of the teacher's work is correct, it would appear that he performs many functions which are quite as difficult as they are significant. In a time when knowledge increases at an accelerating rate and the standards for the practice of dentistry are steadily rising the responsibility of the dental teacher is correspondingly greater than ever before. Teaching the profession to young people is not a task to be undertaken lightly or to be carried on by amateurs for the pleasure it may afford them. Only one who has acquired a thorough mastery of his specialty should be chosen for the important work of teaching. And only one who is willing to make the necessary preparation and to devote himself wholeheartedly to it should have a place in the classroom as a teacher.

TWENTY-FIVE YEARS OF ACTIVE LIFE

An appraisal of historical events, particularly in instances of a continuing and enlarging accomplishment of the aims which brought them about, is not done as readily from the vantage point of twentyfive years as from the clearer perspective of a full century. In the historical scanning of a century in association of a professional group, drawn together with hopes of the crystallization and realization of their common high ideals, the record would reveal pretty clearly those sound policies which enriched and endured as well as possible incidental foibles which passed condignly. A like study over the shorter period is not likely to permit the same certainties in conclusive record.

Thus one can discuss with a tone of finality the events of 1840 and a few ensuing years, in the first significant association of dental practitioners in organized effort to advance professional levels. The focus is sharp on the historic and stalwart figures of the day, the wholesome fruits of their work may be fairly well measured. Likewise may be discerned the fallacious, albeit sincerely prompted, policies into which they were led by the practices of less high-minded elements which beset their times; an outstanding instance being the advent of the gasconading advertiser with the then carelessly prepared, and even more carelessly employed, amalgam as his chief lure to the uninformed. Here the distaste and contempt for such conscienceless practices apparently was transferred to the material itself, with resulting ill-advised policies which proved as disintegrating in dental organization as the faulty material proved in the human mouth. Perhaps a lesson here which should frequently be recalled by those organized in devotion to constructive aims, lest roadside incidents impede uninterrupted advance.

Despite the less clear perspective of a quarter century, surely a professional group would be expected to glance backward a bit as that anniversary year is reached; mainly to recognize its foresighted Founders, partly to determine some measure of how effectively their original aims have thus far been accomplished.

It is of appreciable historical significance that so distinguished individuals as comprised our Founders were in the ranks of the dental profession twenty-five years ago. The fact that dentistry as a field of public service attracted men of such capacity and talent is a fair index to professional advance and prestige in the eighty years following 1840. All were acknowledged leaders, having made telling contributions either in the field of research, education, literature, or otherwise; and all were marked with a singular devotion to the highest professional ideals and dignity. One finds among them the striking counterparts of those historic figures of 1840, and most certainly among them will be found rich material for the future dental historian when the story of the period is written.

However, quite beyond the stature and accomplishments of our Founders, it is of far greater significance that they sensed the revising needs of a profession and, gathering in Boston in 1920, associated themselves to create an instrument to meet those needs. In organizing the American College of Dentists, they were conscious of the fact that the usual dental organizations cared adequately for the details of dental practice. But they were likewise most definitely conscious of the intangibles in professional spirit which were to be stimulated if dental prestige was to be effectively advanced. Their ideals and objectives, carried elsewhere in this issue, were surely built on a base which later was to be defined as follows:¹

"Professionalism is not an ethereal something understood only by philosophers and advocated only by idealists. It is the intangible, yet very practical, cloak of integrity, altruism and culture that shrouds and protects a body of men whose conscious purpose in life is to serve humanity, and who are willing to give spiritual values an even chance with the material things of life."

Contributions to the science of dentistry had been employed as a yardstick of accomplishment quite generally all along in professional recognition; then was to be added the further measure of *devotion* to the larger interests of that science as well. The latter measure, fully as significant as the first, had of course been observed and appreciated as abundant in many individuals before this time, but here was to gain its first proper emphasis. A dominant stress in

¹Robinson, J. Ben.

the objectives on the stimulation of advanced work in dental science and literature, coupled with the intent to "hold forth its Fellowship as a reward to those who faithfully follow such ideals," constituted a clear call not alone to superior achievement but to a superior achievement within the highest code in professional spirit.

In any attempt to measure the progress made in the quarter century toward stimulating and holding to higher levels, it is necessary to scan the background of conditions at the point from which our Founders started. Perhaps as a natural concomitant of rapid growth, and quite likely further influenced by concentration on the pure technical and inventive genius which had developed, the dental profession was superbly justifying the lay opinion that it was a glorified mechanical art, and had attached elements which largely influenced that opinion. Those advanced practitioners who had a concept of the biologic aspects of dentistry, and who gave freely of the results of their research, could scarcely be heard through the din of the louder and more popular advocates who had become the order. These were often professional advocates under the sponsorship of commercial organizations financially interested in the product or necessary armamentarium being proclaimed, and quite frequently, with no professional background, but who gained the ready ear of professional audiences. Dental literature, contemplated as a proper responsibility of the profession by the very first dental organization and sponsored by them as such, had slipped almost wholly into commercial hands. Incidentally, this slipping of control may accurately and fairly be attributed in most instances to a negligence and weakness in professional organization rather than to any grasping tendencies of those who assumed control.

The need for leadership in dissociating the hampering intermingling of incompatible interests which had developed was obvious. Despite the certainty that the necessary policies in solution of the problems involved would not be immediately and universally popular, and despite a ready and grateful recognition of the helpful roles over considerable periods of many commercial organiza-

tions, a courageous leadership faced the situation forthrightly and enunciated corrective policies. The quarter century of leadership has not always been a smooth road in the attainment of objectives, nor did our Founders anticipate that it would be. But sound policies, once promulgated, have been adhered to and the first and rougher road-blocks have given way to intermittent roadside sniping. No mature practitioner can escape the contrast in levels of standards at either extremity of the twenty-five years, nor can he be insensible of the advantages accruing to the profession in those advancing levels. The sound foresight, which contributed and still contributes so effectively in building professional spirit, has been confirmed. The high code of professional life and professional policy, once questioned by many as too exacting, has come to be generally and warmly acknowledged save among a few and isolated elements whose material interests are affected.

The glance backward reveals such impressiveness in the intangibles and imponderables that the valuable contributions of the College in studies of social trends as affecting the profession are almost overlooked. For instance, one likes to think that perhaps the greatest contribution the College has made is the measure of influence in shaping the ideals and purposeful direction of young practitioners as they develop their careers. Is it not natural that ambitious and earnest young men should aim at and hold to such high levels of achievement in professional life that their worth and merit may in time and in turn be recognized and rewarded by accord of Fellowship? If this intangible, more real than many things capable of measurement, has prevailed, then our Founders cannot be wholly displeased with the progress made toward the objectives to which they originally dedicated their talents. Both those who have passed on, and for whose character and influence we give fervent thanks today, and those whom we salute joyously as remaining yet among us to guide us to original goals, saw most clearly that true professionalism would come to be defined in dental minds as something on a distinctly higher level than obtained at that time.

W. N. H.

BOOK REVIEWS

The History of Surgical Anesthesia: This book makes its appearance at a most opportune time, for we have just concluded the one hundredth anniversary of the discovery of anesthesia, by Horace Wells. It is a time too, when more thought is being given to the subject of history, so therefore this is an event of double importance.

It is a book of 191 pages, including an index and elegant illustrations. The author has spent no little effort in selecting and arranging suitable illustrations, including the photographs of men who have made worthwhile contributions. Historians of today, are writing the story of human advance about persons as the neucleus. While events, principles, dates, etc., have their values, the important thing in the whole matter is the individual. So with this book, individuals play the important parts—those who have made discoveries and contributions, and of course, the detailed laboratory studies that have been made looking toward increased beneficence to humanity.

It is printed in splendid type, thus making for easy reading; it carries a *Reference Section* of nine pages, plus; it includes a *Chro*nology of Events, of sixteen pages, and sources therefor, of nearly seven pages. There are also two *Selected References*, one arranged by subject and the other by author.

The book is nicely bound and will make a fine appearance on library shelves as well as presenting authoritative material. The dental profession should be satisfied with it, due to the honorable positions accorded those dentists, Wells and Morton, involved in the early days of this great achievement. It is written by Thomas A. Keys, former Reference Librarian and Bibliographer at the Mayo Clinic. He is at present a Major in the Medical Administrative Corps, U.S.A., in charge of the Rare Book Collection of the Army Medical Library, with a fine introduction by Chauncey D. Leake, Vice President of the University of Texas, and Dean of

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the Medical School and formerly Professor of Pharmacology, University of California. The concluding chapter is written by Noel A. Gillespie, Assistant to Dr. Ralph Waters, anesthetist, University of Wisconsin, Medical School, under the heading, The Future of Anesthesia. Finally it carries an interesting *Appendix*. This book arranged in modern historical style is a timely and valuable contribution to medical and dental practice, bringing as it does valuable facts of the science of anesthesia, and also, a knowledge of the road over which development has been made. It is published by Schuman's, 20 East 70th., New York 21, N. Y. Price \$6.00.

Teaching in Colleges and Universities: This is a new book in the field of dental education representing in part at least, the culmination of a long period of service to dentistry, by Lloyd E. Blauch, formerly executive secretary of the Curriculum Survey Committee, American Association of Dental Schools and at present, Senior Specialist in Higher Education, United States Office of Education. The book consists of eighteen chapters, not including a Foreword by Dr. O'Rourke, Chairman of the Curriculum Survey Committee, and the preface. It carries a well arranged index.

As each chapter was completed, it was carefully criticised by a number of dental teachers and published in the *Journal of Dental Education*. Some of the chapters were prepared by men chosen by the author, reviewed as indicated, published in the *Journal*, then finally arranged and edited by the author for publication.

It is therefore, a timely and valuable book on a most important subject, by Blauch and Associates, marking a real advance in methods and plans for teaching dentistry and training dentists. It is easily read so that the practitioner may find much of value as a stimulus to him in his daily tasks. It is a source of information concerning teaching and learning on college and university level. Copies may be had by addressing the Business Manager, *Journal* of *Dental Education*, 1121 Michigan St., Indianapolis 2, Ind. Price, \$2.50.

How to Raise a Healthy Baby: This book should be one appreciated by dentists, especially those interested in the care of children.

BOOK REVIEWS

If we, as a profession are going to do our full duty by the public in an earnest effort to prevent caries, we must be interested in child care and development, and to this extent closely related to the pediatrician. Here then is a new book, reprinted, 1944, which carries useful, and, as we understand development and pathological processes, correct information to mothers. It is written for the layman (or laywoman) and will be helpful to any mother in raising her child. The references to dentistry in all of its applications, are correct, with no use of obsolete terms. It is written in question and answer form. The author of this book is L. J. Halpern, Department of Pediatrics, College of Medicine, University of Illinois. Published by Prentice-Hall, Inc., N. Y. Price, \$1.95.

Invitation to Health: This book contains a variety of information which should be useful to any reader, whether professional or lay, and would be easily and satisfactorily used in advising patients in health practice, in a general way. The author is Harry M. Johnson, M.D., F.A.C.P., Medical Director, Life Extension Institute and Examiners, N. Y. It is a book of 249 pages, including an index, and an Appendix of Food Values. It is published by Prentice-Hall, Inc., N. Y. Price, \$2.75.

The Story of the Allied Dental Council, by S. J. Levy, D.D.S., and a Preface by William J. Gies, Ph.D., Sc.D., LL.D. This is a history of Dentistry in the New York Metropolitan area "relating in simple narrative form how dentistry fared and how dentists lived then and follows them up through the years to the present day." It is published by Dental History Publishers, Inc. Price, \$2.75.

Accepted Dental Remedies: This little-big book of 306 pages, $3\frac{1}{4} \ge 5\frac{1}{4}$ inches of text, which requires no more than announcement. It is published by the Council on Dental Therapeutics of the American Dental Association. It is the 11th edition and contains valuable knowledge pertaining to the drugs and medicaments used in dental practice. In these days of extensive chemical manufacture and intensive competition, the dentist needs to be correctly informed. In this book and the Council as publishers, one can be confident in the information provided him. The price is \$1.50.

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